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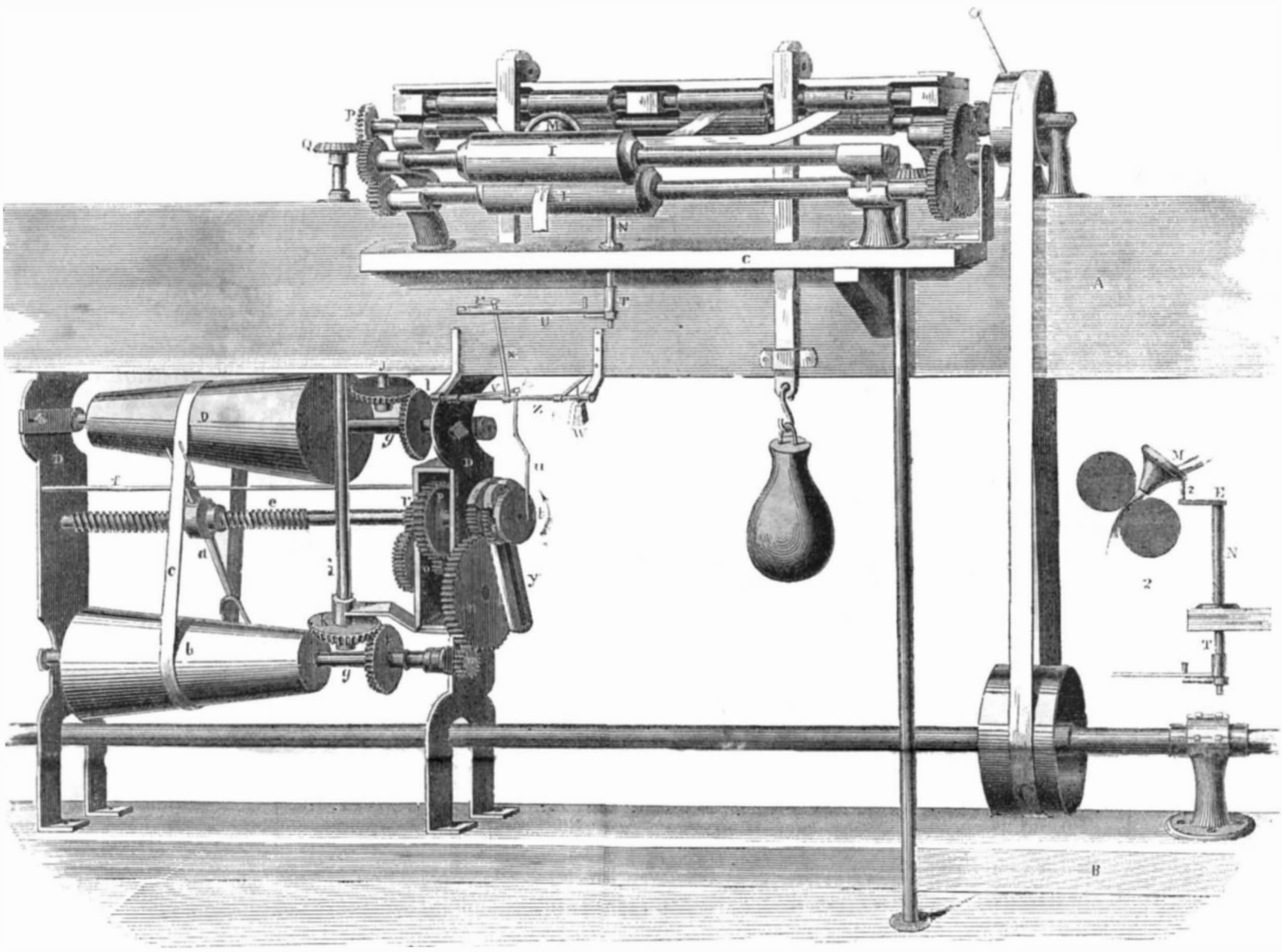
IMPROVED DRAWING REGULATOR.---Fig. 1.



The annexed engravings are a side elevation (figure 1) and the trumpet (figure 2) of an improved drawing regulator for spinning cotton, patented by Newell Wyllys, Jan. 1851, and assigned to Charles Collins, of Hartford, Conn.

The object of this machine is to overcome the irregularities and defects in spinning cotton, occasioned by the want of uniformity in the extension or draw of the sliver, passing from the drawing frame.

The arrangement of mechanism in connection with the trumpet or condensing tube, is such that when the sliver is of the proper or required size, the lever on which the trumpet is mounted, occupies a neutral or mean position between the two extremes of its vibration, and the tendency to this neutral point increases in force in proportion to the distance it is moved therefrom. Any variation in the density or size of the sliver, varies the position of the lever to which the trumpet is attached, increasing or decreasing its effective length, and just in the same proportion increasing or decreasing the speed of the back or feeding rollers, thereby increasing or diminishing the extension or draw of the sliver to a uniform size or density.

DESCRIPTION.—A is the roller beam of the drawing frame; B is the foot beam or girt; C is the calender roll board; G are the top rollers H are the bottom or fluted rollers; I are the calender rollers; P is the bevel gear on the end of front roller, H; Q is the bevel gear on the end of upright shaft, *i*, and is driven by gear, P; *i* is an upright shaft connecting the front roller, H, with the lower cone; *k* are the bevel gears on shafts, *i* and *g* driving the cones, *b*; *j* is an upright shaft connecting the upper cone with the back roller; *l* are bevel gears on shafts, *j*, and upper cone shaft. *g*, driven by the cones, *b*; *m* is the pinion on the end of lower cone shaft, *g*, which drives the spur gear, *n*; *y* is the vibrating beam, turning on a shaft, and driven by the spur gear, *n*, to which it is connected near the circumference. On the upper end of the vibrating beam are catches operating the ratchet wheel, *s*; *s* is a ratchet wheel, on a shaft between the escapement, *t*, and the vibrating beam, *y*; *t* is an escapement, connected by rod *u*, to the end of lever, *v*, on the horizontal shaft, Z, and by levers, X and U, to the trumpet shaft, T. The moving of the trumpet, M, either way, by turning the shaft, T, gives a corresponding motion to the escapement, so that the catches on the vibrating beam take effect on the ratchet wheel. At the other end of the shaft to which the ratchet wheel is attached, is a spur gear, *p*, which drives the pinions, *o* and *r*, turning the screw shaft, *e*. The revolution of the screw shaft moves the belt guides right and left, and through the bevel gears, *l*, regulates the speed of the back rollers; M is the trumpet, which revolves on a perpendicular pin, 2, attached to the end of a lever, E, the other end of which is attached to an upright shaft, T, that turns in a tube or stand, N, as represented in figure 2. Whatever may be the situation of the lever, E, the mouth of the trumpet is always presented to the drawing. and turns out and in, either way from an angle of about forty-five degrees with the line of the calender rollers, according to the size of the sliver or friction of the drawing compressed in the trumpet. Whenever the trumpet is moved toward the calender rollers, I, by an increased quantity of drawing in compression, the effective length of the lever, E, is shortened correspondingly, and lengthened in the same proportion when the motion, owing to a decreased quantity of drawing, is towards the drawing rollers H and G.

This arrangement obviates the continual vibration of the trumpet each way from the central point, and prevents those defects and irregularities in the drawing, or sliver, which will occur where use is made of the direct action of the lever.

These machines can be seen in operation in the mills of Hon. Charles Jackson, Rhode Island, at Scituate and Fiskeville, also at Crompton Mills. We have seen a letter from Mr. Jackson, speaking in the highest terms of its merits. Mr. Collins has assignments from those who have patents for other drawing regulators, so as to prevent trouble about conflicting rights. One of these machines will be in operation in the Crystal Palace, in this city when it opens, where its action can be seen and judged of, and more information can be obtained by letter addressed to Mr. Collins, at Hartford, Conn.

Great Railroad Speed.

A locomotive dispatched from Laporte, Ind, to Chicago, for physicians to attend Robert Doxtader, Esq, President of the road, who died at that place of appoplexy, ran the entire distance and back, in one hour and forty minutes. The distance is 58 miles each way, making a speed of 116 miles in 100 minutes. This is fully up, if not superior to the speed daily attained on the English Great Western Railroad between Paddington and London.

Singular Lakes.

The Crateur Lakes, in the town of Manlius, Onondagua Co., N. Y., are curiosities, and are supposed to be of volcanic origin. They are, by the inhabitants about there, called the Green Lakes. One of them is on the top of a hill, and is in the form of a tea-cup. The banks are two hundred feet high, and the water four hundred feet deep. The water appears of a deep green, but when taken up in a glass, it is perfectly clear and transparent. Trees and limbs which fall into the water soon become encrusted with a bright green substance, which, on being exposed to the air, becomes hard. The timber decays and leaves this incrustation in the shape of hollow tubes Wood saturated with this water and burned, emits a strong odor of sulphur. A farmer who resides near, once heard a great rush of water, and looking round saw the lake rising over the banks. He was alarmed and fled with his team, but the water soon receded to its usual level, and he returned to his furrow, more puzzled than instructed.

The Baltic arrived at this port on last Sunday evening; her news is of considerable interest, inasmuch as it is now believed by our "press" (sensible men never believed otherwise) that there will be no war between Russia and Turkey at present.

Capt. Vanderbilt was quite a hero in England; the authorities of Southampton had given him a grand entertainment, and he, in return, had invited them to a short pleasure trip and a dinner on board of his steam yacht.

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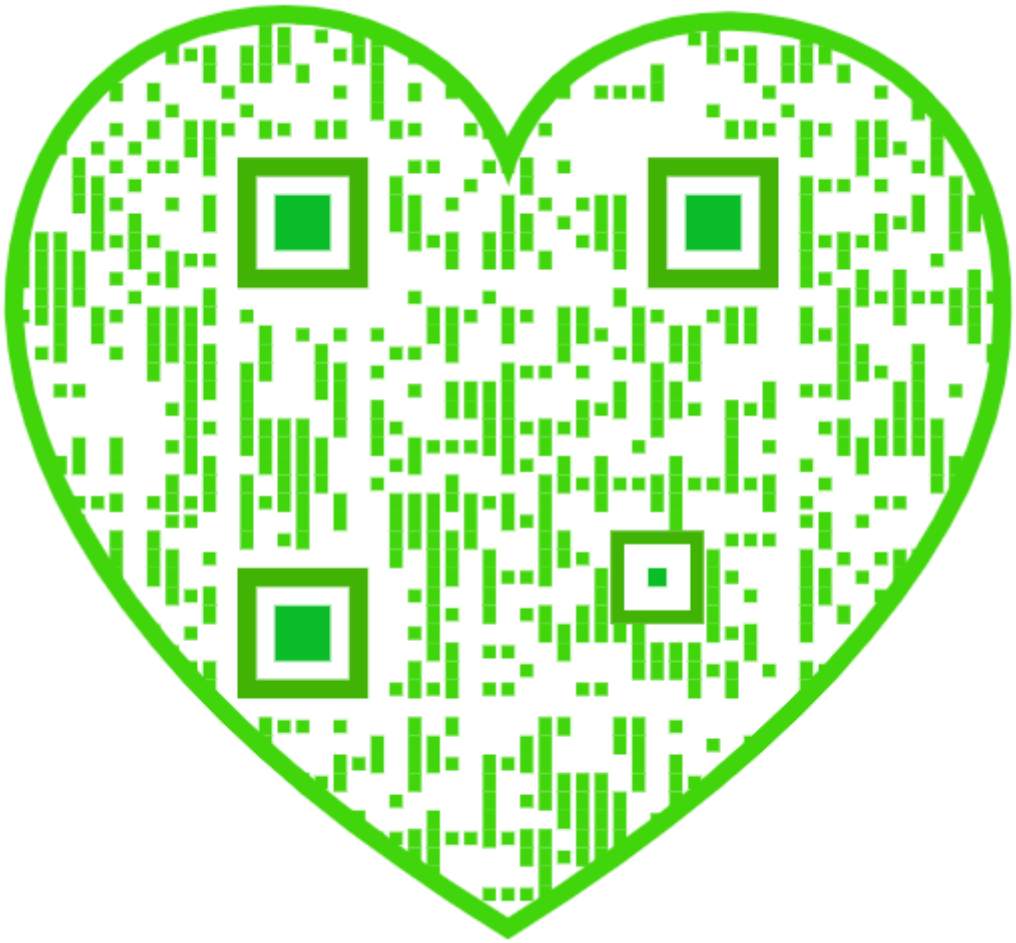

MISCELLANEOUS.

A Huge Anatomical Demonstration.

Dr. Cartwright, of New Orleans, amuses himself with the anatomical dissection of alligators, his object being, as he alleges, the demonstration of certain new physiological views that he entertains. On a recent occasion he cut up three of these monsters in the presence of a large number of scientific gentlemen, with the following results, according to the New Orleans papers:—"He divided the spinal marrow in three places—at the base of the neck, in the middle, and at the base of the back; nay, he divided the nerves emerging from the spine—and still, on irritating the nerve between the section and the extremity, he demonstrated the animal possessed a diffused sensibility, a capacity to recognize pain, and even an intelligent power to act against or attempt to escape the cause of the pain.—Cutting off the head of the animal, jobbing out the spinal marrow, dividing the nerves coming from them, and irritating them along their distal portions, they still retained this independent sensibility, and the mutilated limbs of the headless animal would make intelligent motions for getting rid of the local torture. These are curious and curious discoveries. Dr. Cartwright contends, against long odds, it is true, that in the lungs, not the heart, resides the motive power of the circulation; that literally, as Moses asserted, the blood is the life of the flesh, and the air the life of the blood. He affirms that after death, when the pulse has stopped, the heart is still, and the body is insensible to pain; by producing artificial respiration, by inflating the lungs, the blood can be started anew, its life revived, and the body resurrected absolutely from the cold abstractions of death. Both of his alligators had their windpipes tied, and one of them had his chest opened, with his heart, lungs, stomach, &c., exposed. In the course of two hours both animals were dead, pulseless, and quiet over flames of fire. Then, a bellows being inserted into the trachea, inflation was begun, and continued for some minutes. We saw the motionless heart throb, the blood beginning to flow from the lungs to that organ—the eyes of the alligator opened, and the hapless "victim" lived again! The alligator whose chest was exposed, had his carotid artery accidentally cut, thereby losing a considerable quantity of blood, and hence it was not made so briskly alive as the other, who retained all its vital fluid."

[The above reads very much like a "great fish story."

Floods of the Ohio.

We have received a letter from Joseph E. Holmes, superintendent of machinery at the Crystal Palace, wherein Mr. Ellett's views respecting his proposed mode of improving the navigation of the Ohio River, and our own opinions respecting them, as expressed on page 309, Vol. 8, Scientific American, are dissented from. He believes, as he is acquainted with the grounds on the head waters of the Ohio, the plan is impracticable but not impossible. 'It is not," he says, "what is possible should be done, but what is politic." Of the policy spoken of, the people in that section of the country are the most interested, and no doubt the best judges. If any great work—no matter what its magnitude may be—can be demonstrated to produce beneficial and economical results, we like to advocate the measure, and the greater the work the more highly do we desire to see it executed. We like to hold up the accomplishment of great works to our people. If Mr. Ellett's data can be trusted, then the work can be done, and done to produce good results. We cannot contradict his data, and the only way to show the impracticability, is to point out the incorrectness of his calculations, statistics, &c.

Singular Nutriment of the "Digger Indians.

The "Columbia (California) Gazette" says that there are two considerable Indian villages in that vicinity at the present time, and the Indians, who looked as lean and gaunt as half-famished wolves during the past winter, now appear to be enjoying all the luxuries that an abundant supply of clover and an occasional supply of beef and bread can afford. The hills in the vicinity are verdant with nice, tender clover, which is devoured by these poor savages with as much gusto as an epicure would devour the most dainty dish. They gather the clover in baskets and prepare it for use by heating large stones and placing a layer of clover well moistened between each layer of stones. It soon becomes ready for use, and each one of them will eat a supply of clover thus prepared, that would almost satisfy a horse.

Riot in New York.

A terrible riot occurred Wednesday night, the 22nd inst., at the residence of Dr. George A. Wheeler, in Seventeenth street, this city, caused by the finding of some human bones on the premises. A mob of 3,000 collected, armed with clubs, axes, and stones. Dr. Wheeler's store and dwelling were attacked, the inmates driven out, and the premises completely gutted. Nobody killed, though some police officers were injured.

As may be inferred by any intelligent man, the mob was composed of a low and brutally ignorant class. Our daily papers say they were mostly foreigners and Irish. Of this we know nothing, but that they were all savage ignoramuses we have not the least doubt. Not one of the mob who had his arm or leg broken, but would run or get carried to a doctor to get it set, and how could he do this unless he was acquainted with the anatomy of the human body?

IMPROVED MACHINE FOR DRESSING HEMP.

Figure 1.

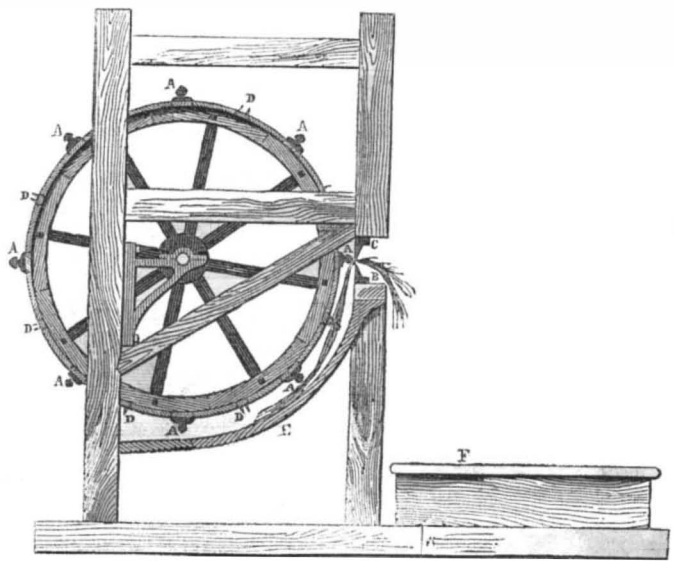

Figure 2.

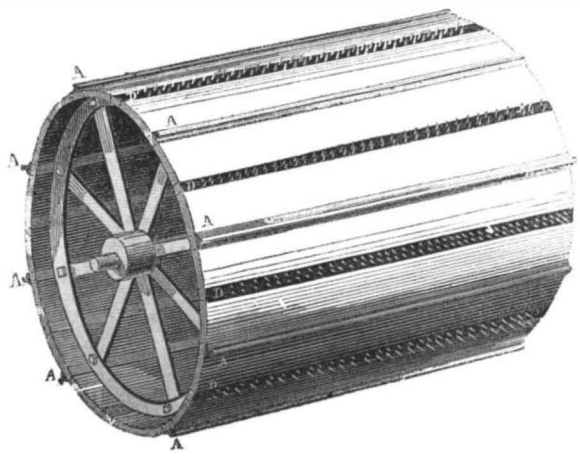

Figure 1 is a perspective view of the cylinder, which contains the heckler teeth or combs and beaters—detached from the frame in which it revolves, and figure 2 is an end elevation of the whole machine.

The object of the improvement is to furnish a machine, which shall admit of employing several workmen at the same time, and perform the work in a manner quite superior to the method heretofore used. In the accompanying engravings a strong frame is represented, to which the platform, F, is attached, upon which the workmen stand when attending to the machine; within suitable bearings in this frame, the cylinder revolves, being propelled by any power desired, at a moderate speed or motion, suitable for the performance of good work. This cylinder is constructed in the form and manner shown in perspective in figure 2, with horizontal beaters, A, and heckle teeth, D, set in its circumference. The teeth are much shorter at the end of the cylinder to the right of the operator, and gradually increase in length as they approach the opposite end; B C are horizontal bars or guides for the hemp, set near the periphery of the cylinder and firmly attached to the frame of the machine; the opening between these bars is enlarged as they extend to the left of the end of the cylinder; the object of this is to form a convenient place for introduction of the hemp to the beaters and heckle teeth; E is an apron curved to fit the cylinder, and extending its whole length, and as far to the left of the cylinders as the bars, B and C, extend; it is stationary in the frame work of the machine, and serves to keep the several "hands" of hemp in contact with the teeth or combs and beaters. The hemp being previously prepared by rotting, breaking, &c., is subjected to the action of this machine by being introduced in what is called hands, to the left end of the guide bars B C, and carried by the attendants (from one to six of which may work to advantage) to the right end of the cylinder. It is stated that this simple and ingenious mode of dressing hemp, furnishes an article of much longer fibre than is obtained by any machine heretofore used. The hemp may be heckled by it to almost any degree of fineness required, or it may be very slightly dressed, as desired for the use to which it is to be applied. The expense of working and attending these machines is said to be comparatively small, and the amount of work performed by them most satisfactory—it is a very good invention.—James P. Arnold, of Louisville obtained a patent for this invention, Jan. 4, 1853. The claim may be found on page 142, Vol. 8, Scientific American. More information concerning rights, &c., may be obtained by letter addressed to the inventor.

New Blasting Invention.

A correspondent who is well qualified to judge of such matters, sends us an account of a new invention for blasting rocks. He writes after an examination of the process:—"The apparatus is the invention of Mr. A. Stickney, of Norwich, Vt. It is a platinum tube about ten inches in length, with holes in its side. Connected with this is an iron tube of any required length. This is the apparatus, and now for the operation. A hole is drilled in the rock to any length; this tube is filled with charcoal and ignited in the platinum, and inserted in the drill hole. A blacksmith's bellows is applied to the upper end of the tube, and the most intense heat is forced through the small holes upon the sides of the rock, scaling it off in fine powder at a rapid rate. When the heat is sufficient, the tube is withdrawn, and water poured in, which enlarges the hole at the bottom. The effect of powder upon a rock when confined in such a way must be tremendous. The experiment has been tried with the most perfect success."—[Boston Transcript.

[To us it appears as if the above invention was both slow and expensive, and not so good for the purpose as the one described by us about two years ago, whereby the bore was enlarged at the bottom by the use of chloric acid. Practice, however, is the proof of the system.

New Mode of Constructing Flat-bottomed Boats.

An improvement in the mode of constructing canal boats, barges, and other flat-bottomed vessels, has been made by John McCausland, of Rondout, N. Y. Curved, timbers, or knees have heretofore been in use, and these timbers are attached to the timbers which form the keel; from thence they are curved upward and form the sides of the vessel. Mr. McC. dispenses with the knees altogether, and also with the use of any heavy timbers in the keel of the boat, but in the place of these he uses cross-tied plank, and gives strength to them at the sides, by means of stays which are constructed at less expense, and, at the same time, give lightness and the requisite strength, to the vessel. The inventor has taken measures to secure a patent.

Sun Stroke.

Exposure to the mid-day sun, during the last few days, has caused a large number of deaths. In this city, from Tuesday morning till Wednesday evening, last week, sixteen persons, principally laboring men, died from this cause alone. The following directions for treating these cases, is said to possess much efficacy, and until the attendance of a physicican is procured, it may be useful to try it; it is to be applied early to be of any use:

"Place the patient in a cool and airy situation, with his head and shoulders elevated, and while one is removing his cravat, unbuttoning his shirt collar, and removing or loosening whatever else that may be tight about his person, dash suddenly cold water on the head. This may be done with a pitcher, or any suitable vessel, held at some little distance above the head, pouring out upon it a large and steady stream.

Mustard plasters may also be used over the upper part of the feet, and on the wrists.—But continue the water, and the patient must be saved. It is hardly possible to speak too highly of the beneficial influences of cold water in the treatment of *coup de soleil*. Many violent cases of this, and also of apoplexy, have been most successfully cured by it.

Special Manure for Grapes.

The wine Committee, at the exhibition of the Cincinnati Horticultural Society, reported that of two specimens of wine, one from grapes to which a special manuring of potash had been given, the wine from the manure grapes was "bright, clear, and mellow, like an old wine." The other was declared to be less matured in all its qualities, nor was it clear. The grapes themselves, from the two portions of ground, were also presented to the committee. "Both were delicious and well ripened, but it was considered that those from the manured land were sweeter, and that the pulp was softer."

To keep Tires tight on Wheels.

A correspondent of the "Southern Planter" gives the following method for keeping tires tight on wheels:—Before putting on the tires, fill the felloes with linseed oil, which is done by heating the oil in a trough to a boiling heat, and keeping the wheel, with a stick through the hub, in the oil for an hour. The wheel is turned round until every felloe is kept in the oil one hour.

An injunction was granted against the Second Avenue Railroad in this city, but it has been quashed, and the construction of it will now proceed,

The steam propeller "Challenge" running on Lake Michigan, exploded her boiler on the 22nd inst., killing five of the crew, and severely wounding a number of others. It was her first trip.

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[For the Scientific American.]

The Chemistry of Bread Making.

The various modes of making bread have mainly for their object the production of sponginess or lightness, by which a large quantity of air is retained in it, which gives to a loaf that lightness and uniformity of structure for which it is so highly prized. There are various means by which this object is accomplished, as by the re-action of acids upon the alkaline carbonates, which is the course generally followed in the extemporaneous preparation of bread. A process sometimes followed, though objectionable on some accounts, is that of thoroughly mixing bicarbonate of soda with flour, and then neutralizing it with an equivalent quantity of hydrochloric acid. The re-action that occurs in this case is best understood when expressed in symbols, thus: Na. O. 2C.O.^{2}+H. Cl.=Na. Cl.+H. O.+2C. O.^{2}; that is, one equivalent of bicarbonate of soda and one equivalent of hydrochloric acid are resolved, when brought together, into one equivalent of the chloride of sodium or common salt, one equivalent of water. and two equivalents of carbonic acid gas. The advantages of this method are, that if proper care is taken, the products formed during the re-action, are not in the least injurious to the system. The common salt is a necessary constituent of the blood, and the water and carbonic acid are dissipated by the heat of baking; the latter being retained by the pores or vesicles of the bread until it is baked, by which its lightness is preserved. The objections to this process are, that the acid may contain poisonous impurities, or may not be of uniform strength, and is itself a deadly poison, and a dangerous substance to keep about a house where there are children or careless servants. Should this substance be swallowed by accident or design, the antidote is carbonate of soda, or chalk—the former to be preferred in all cases. When this acid is spilled upon articles of clothing, carbonate of soda dissolved in water will remove it.

Another more common process for making bread is, by the use of cream of tartar or bis tartrate of potash, an acid salt, and bicarbonate of soda. This process is based upon the fact that the tartaric acid in cream of tartar is not completely neutralized, and has the power to combine with the soda of the bicarbonate of soda, and displace the carbonic acid of that substance. This re-action is easier comprehended when illustrated by symbols, thus: K. O. H. O. Trc.+Na. O. 2C. O^2=K. O. Na.O. Trc.+2C. O^2.+H. O.; that is, tartrate of soda and potassa or Rochelle salt, which is a bibasic salt, is formed, and carbonic acid and water are displaced, performing the same office as in the other method. This mode of bread making is not liable to the objections urged against that where the muriatic acid is used, and according to some investigations made on this subject by my brother, Professor C. W. Wright, of this city; bread made in this way agrees better with persons laboring under certain forms of indigestion, than that made by either yeast or the muriatic acid process. The Rochelle salt, and in fact all salts containing an organic acid, are converted into carbonates of the bases with which they are combined when they are taken into the blood of animals; and in the present instance we have formed the carbonates of potassa and soda.

In former times pearl-ashes, or saleratus and sour milk, were more extensively used in bread making than at present. Occasionally carbonate of soda was substituted for saleratus. In this process it is the lactic acid which displaces the carbonic acid gas from the saleratus, or the carbonate of potash of chemists. The following is the re-action, expressed in symbols: K. O. C. O^2.+Lc.=K. O. Lc.+C. O^2.; that is, the lactate of potash is formed and carbonic acid evolved. If an excess of saleratus be used, the bread is of a yellow color and disagreeable alkaline taste; if deficient, it is watery, heavy, and very indigestible. Saleratus, by itself, is a poison when taken in a large dose; several persons having lost their lives by swallowing it. The antidote is vinegar, or any oily or fatty substance, as sweet oil or butter.

Carbonate of ammonia is occasionally used in the preparation of bread, and being a very volatile body, rises as a gas, and diffuses itself through the dough during the operation of baking, by which the same object is accomplished as in other processes.

The soapy taste which is perceived in the various kinds of pound-cakes, &c., in which butter or lard is a constituent, is due to the formation of a soap, and where the carbonate of ammonia or sal volatile is used, volatile liniment is generated, which is a species of soap. The carbonates of the alkalies should, however, never be employed in the preparation of these substances, as they are very apt to produce derangement of the system of persons in delicate health.

The so-called "quick yeast," and all similar preparations, consist of the carbonate of soda and cream of tartar or tartaric acid, which, when dissolved in water, causes the evolution of carbonic-acid, and which, by rising through the dough, is the cause of its lightness.

The foregoing substances are more frequently used in the preparation of biscuit, rolls, &c., than other forms of bread.

The very ancient process of rising bread by means of leaven or yeast, depends also upon the developement of carbonic acid; but in this case the carbonic acid is formed from the sugar that exists in the dough, and which undergoes the vinous fermentation, whereby alcohol and carbonic acid are generated. The alcohol is expelled by the operation of baking, but by proper care can be collected and examined. The sugar is formed by the transformation of starch into that substance.

Bread, when first baked, is always lighter than it is after it has cooled, from the expanded state of the gases in its pores by the high temperature to which it has been subjected; but the contraction which it suffers after it has become cold is due to the loss of water by evaporation.

In the operation of baking, the starch is in part rendered soluble in water, being converted into a species of gum, at the same time sugar is formed, and the bread rendered much more nutritive and digestible than flour that has not been subjected to this operation.

Good bread generally contains about 50 per cent. of water. Common salt prevents the rapid drying of bread, and the same effect is produced by the admixture of potato meal.

Various substances are used to improve the quality of inferior or damaged flour. Thus alum is used to whiten bread made of bad flour and make it rise better, and a small quantity is not injurious but decidedly advantageous. Sulphate of copper or blue vitriol, which is sometimes used, is a very poisonous adulteration, and should never be employed. The latter substance is used with the view of whitening the flour, which, when damaged, is generally of a yellow color, and by the admixture of a blue substance it is changed to white, on the same principle that indigo is used to whiten linen articles in washing.

There are establishments in this city where the flour is worked up with soap-suds, made from common yellow soap, instead of water. On several occasions I have seen distinct particles of soap in bread purchased from these bakeries, and it is frequently perceptible to the taste. What their object is in employing this nauseating substance, I cannot conjecture, unless it is to neutralize the acid formed during the fermentation of the dough, and by which acetic acid or vinegar is formed, from a partial oxydation of the alcohol, which is always generated in these cases.

MRS. JULIA A. COOK.

Cincinnati, June, 1853.

A Rich Shovel.

The silver shovel recently used in the ceremony of breaking ground for the Mountain Lake Water Company, at San Francisco, was banded with gold, and cost a thousand dollars. With it a small quantity of the earth was shoveled up and placed upon a silver salver, upon which also were some of the wild flower plants so abundant. The same shovel was also employed at the dinner table in shovelling into the plates of the ladies present, generous quantities of large ripe strawberries from a half bushel measure which was filled with this rich fruit, gathered in the vicinity.

The old Merrimack Mill, at Lowell, was burned down on the 16th inst.

The United States Patent Office.

We often speak of reforming this and that evil, not because there is a universal shouting everywhere for reform at the present day, but because the reform or reforms we advocate, in our opinion, would be more than a mere change of system—they would result in permanent benefits. We never declaim against an evil until we have a remedy to propose, and have made ourselves acquainted with both the evil and proposed remedy. We are conservative in that which *is*, until we know of a superior substitute. It is, however, somewhat fashionable at the present day, for would-be patriots and philanthropists to talk loudly of great reforms, which, when calmly examined by the light of knowledge and reason, are nothing but destructive and injurious changes. Of this character is a reform proposed for the United States Patent Office by a Washington correspondent of the "New York Tribune," in a letter in that paper of the 15th inst. Of some things he speaks sensibly and well, but when he speaks of the way alleged new inventions should be examined, and the practice of the Patent Office in examining them, he exhibits a want of correct knowledge of his subject. He says:

"With all our worship of the Baconian philosophy, it seems never thoroughly to have penetrated the Patent Office. A machine or process is submitted to the Examiners, and they rummage their books, brains, and perhaps the model shelves, to see whether the same combination or method has been devised for that or any other purpose before. If not, it is new, and, being of course useful, a patent is issued. The last thing the Examiner or Honorable Commissioner thinks of is to inquire whether this new invention is practically superior to others for the same purpose that have preceded it. The law enjoins no such inquiry, unless it be in regard to a claim expressly for an improvement. But has not every man a right to the exclusive use and property of his own invention, whether it is superior, practically, to all others or not? It may be so. Let him have a patent if he insists on it. But by all means let the office thoroughly and scientifically test the practical superiority of the invention over older ones for the same purpose, and if that is found *nil*, let that fact be certified, or the reverse if otherwise. In other words, let the Patent Office be organized with suitable officers, to try this important question and report in every case, not so much opinions, as honest facts, from which the public may form their own.

The present state of the Patent Law and practice is so much the reverse of this, so completely *un*-Baconian, that the author of a worthless invention stands a better chance of getting a patent than does the author of a valuable one. A really good invention is almost uniformly more simple and direct in its combination of means; and just in proportion as it is simple, does it become difficult for the Examiner to find in it novelty—that almost sole legal element of patentability. He is puzzled to get hold of what he calls a "new principle" in it. It may work infinitely better than anything ever employed for the same purpose—indeed, it may accomplish its purpose while every previous machine has proved a failure—and yet, because the Examiner cannot see, from models, drawings, or specifications, a new or distinct 'principle,' (O, the mystery there is in that word!) he will refuse a patent! A Baconian commission, which should practically test the results with working machines, or compare the working of the new machine with recorded results of the older ones, would probably bring in a very different verdict. So it happens that from the Patent Office, as at present organized and regulated, real, practical inventors find it very difficult to get protection, while the country at large gets unboundedly cheated."

We have quoted the article fairly in order to point out its defects. The law gives the Commissioner of Patents power to decide both upon the *usefulness* and the *novelty* of an invention, and it the invention has nothing *novel* (new) about it, then it must be old and consequently a patent cannot be granted; to do so would be granting a patent for another man's invention. It a new machine operates better than another older one, there must be some reason for its doing so; it must have some new part, or arrangement to enable it to operate better, consequently that new part or arrangement can be claimed and a patent will be granted if the case is carried up by appeal. There can be no doubt of this, and the writer of the article quoted, shows himself to be ignorant of law in this respect. A certain machine exactly like another may operate better, because more work has been expended upon it, but that is not an invention, and for mere excellence in workmanship, no patent can be granted. The manner proposed of carrying out the said correspondent's Baconian philosophy in the Patent Office savors strongly of *gammon*. To carry it out, would require every inventor to construct and furnish a large working machine, and there would have to be commissioners appointed to test and examine the same, whose expenses, no doubt, the inventor would be called upon to pay, and after all their judgment might be inefficient, and they might condemn a good machine, and recommend a worthless one. It is quite easy to deceive some of the smartest men appointed to power and place; witness the letter of the late Secretary of the Navy, J. H. Kennedy, on the "Ericsson," which subsequent events have proven to be a piece of nonsence. The government has already paid handsomely for useless inventions recommended by appointed commissioners, and we don't want government commissioners to be judges of the merits of inventions; inventors are the best judges of the value of their own inventions, and they take patents on their own responsibility. The public are not so easily deceived with inventions as some imagine; there would be far more deception practised if government commissioners were appointed to place their seal of approval or disapproval on inventions. The present system of examining and granting patents has no defects in law, if there are some in practice, and these we hope to see reformed before many months pass over our heads.

No Boilers.

A cold water steam engine is spoken of in the Cincinnati papers as a new invention.—The steam is produced without boilers by simply injecting cold water into generators. The amount of steam required to force out or return the piston rod is made by the introduction to the influence of the fire at each moment of precisely the quantity of water needed, thus doing away with the necessity of boilers. It is claimed that there is no possibility of an explosion, that greater power is obtained and less room occupied for the necessary machinery. The water falls into the engine, being first raised by a force pump into a reservoir situated above the engine, and thence inducted down as wanted.—[Ex.

[The above project is nothing new. The same thing was proposed more than twenty years ago. It is founded upon a wrong principle and cannot succeed.

Water through Lead Pipes.

We are frequently told of the deleterious effect upon the system, of water which passes through a lead pipe, but only occasionally are we made sensible of the extent of the danger. Several days ago a gentleman living a few miles out of the city, caught a couple of trout and placed them in a trough, the water of which was supplied through a lead pipe, intending to keep them there. In less than three hours they were both dead. Suspicious of the reason of this sudden death, he determined to make another trial, and placed in the trough another trout. The same result followed in less time, and he made a third experiment. The result was still the same, and he considers it a settled fact that a trout, a native of the pure, sparkling stream, cannot live in a lead-impregnated water. If such water is poisonous enough to kill fishes, it cannot be without its destructive effects upon the human system.—[Manchester (N. H.) Democrat.

The boiler of locomotive No. 58, New York and Erie Railroad, exploded on the 16th inst., by which eleven persons were instantly killed and several others wounded. The cause was over pressure.

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NEW INVENTIONS.

New Car Wheel and Truck.

An improvement in the construction of car wheels and trucks, for turning curves upon railroads, has been invented by John T. Denniston, of Lyons, N. Y. It is well known to our readers that a multiplicity of devices have been brought before the public for obviating the difficulties encountered in turning curves; many of these inventions have been very good ones, although but few of them have ever been thoroughly tested in practical use. A device was described in the Scientific American a few weeks since, in which, by a very ingenious contrivance the axles of the cars were made to assume the form of radii to the curve. Many other contrivances have been used, some of which were very good and others of no practical utility. The one invented by Mr. Deniston has certainly one thing to recommend it, and this is simplicity; in his improvement the object is accomplished by making the rim of the wheel somewhat thicker then is used, and forming the flange in the centre of this rim, thus forming two treads, one upon each side of the flange. The circumference of the tread upon the inside of the flange being larger than that upon the outside. When the curve is turned, this inner tread takes a new rail, placed near the outer rail of the curve, and thus causes the cars naturally to run in a circular direction. It will be observed that the outer wheel, in turning curves thus instantly, becomes larger than the inner wheel, which gives the curvilinear motion. The inventor has taken measures to secure a patent.

New Stump Machine.

J. B. Creighton, of Tiffin, Ohio, has made an improvement in the mode of constructing stump machines. The plan adopted by the inventor, Mr. C., is to place a large screw vertically in the frame, and so constructing a nut to work upon this screw, above the frame, that a sweep may be attached to it permanently and with convenience. The power being applied to this sweep, raises the stump perpendicularly from its firm bed. The nut turns with the sweep, but the screw is prevented from turning by its attachment to the stump Another feature of the invention consists in constructing adjustable rollers, by which the machine may be transported from one place to another with great ease. Measures have been taken to secure a patent.

New Model for Steamboats.

G. M. Ramsey, of this city, has shown us a new model for a boat, designed for an ocean steamer. The design of the model approaches more nearly the conical shape than those in use,—the greatest breadth of beam, or line from which it is tapered being, about three-quarters the distance from the bow to the stern. It is constructed with particular reference to its power to rise upon the surface of the water, as it is thrown ahead by the action of the paddle wheels, and for the accomplishment of this purpose the inclination of the keel from the point of the greatest breadth of beam to the bow, is more acute than the models of our best sailing vessels. This is a a very good principle, and has been applied to great advantage in our best ocean steamers but not to the extent to which it is applied in the plan proposed by Mr. R. A test experiment will demonstrate what are the sailing qualities of the proposed improvement—nothing but a trial can demonstrate it fully. The inventor sets the shaft of the paddle wheels a short distance ahead of the greatest breadth of beam, at an inclination to the line of motion, and the buckets at right angles to the line of motion, and at a slight inclination to the shaft of the wheels.

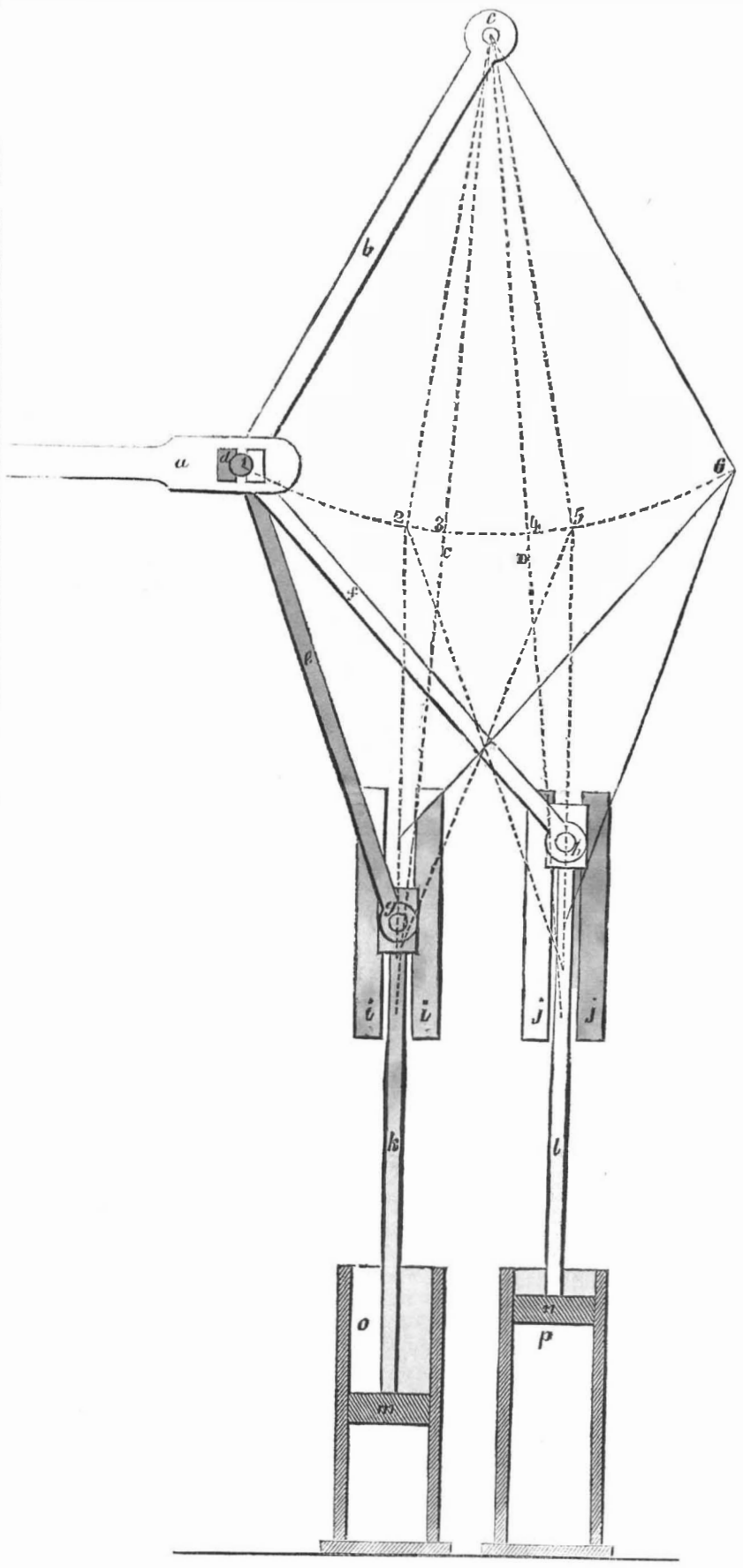
Clover Separator.

James Allen, of Frease's Store, Ohio, has taken measures to secure a patent for an improvement in clover separators, the nature of which consists in a peculiar arrangement of what is called the "tail-boards" at the outer end of the shoe and sieves, and a chamber or passage containing a screen at the bottom of the shoe, by which arrangement the seed is prevented from passing off the upper screen with the chaff, and is thus more perfectly separated than heretofore.

Smut Machine.

David S. Mackey, and Jarvis R. Smith, of Batavia, N. Y., have made certain improvements in machines for extracting the smut and other impurities from grain, for which measures have been taken to secure a patent. The improvement may be briefly described as follows:—Two circular plates or discs are placed within a cylinder both nearly horizontal with each other, one of which revolves rapidly and the other remains stationary.—These plates or discs are each provided with two or more concentric inclined flanges having radial flutes or grooves cut in them for the purpose of thoroughly scouring and separating the smut and other impurities from the grain These discs, made slightly concave, are surrounded by a curb, which collects and concentrates the grain. The whole is very conveniently arranged.

STEAM ENGINE EQUALIZER.



The annexed engraving is a vertical section of a machine for equalizing the action of steam, when used expansively, and for which a patent was granted to the inventor, W. Henry Morrison, of Indianopolis, Indiana, on the 21st of last December.

The object of this improvement is to equalize the action of steam when used expansively in a reciprocating engine; so that during the first part of the stroke of the piston, when the full power of the steam is admitted to the cylinder, a power shall be accumulated, to be returned to the engine when the power of the steam is lessened by expansion. In the annexed engraving, *a* is a portion of the piston rod of the steam cylinder, or of a rod suitably connected therewith; *b* is an arm having a fixed centre of vibration at *c*, and jointed at *d*. to the rod, *a*; *e f* are two arms also jointed at *d*, with the arm, *b*, forming toggles, which respectively work the blocks, *g h* in the slides, *i i j j*; to these blocks are attached piston rods, *k l*, and the pistons, *m m*, working in air-tight cylinders, *o p*, these cylinders being open at the top. The range of the centre, *d* at the end of piston rod, *a*, is shown by the the dotted line, 1 2 3 4 5 6, and the chord of the arc described is the length of the stroke. It will be perceived that on the stroke of the steam cylinder piston, the pistons, *m n*, are depressed in the air-tight cylinders, *o p*, until the point, 3, is reached; from this point to the point 4, the piston, *m*, ascends, the piston, *n*, still descending; thence to the end of the stroke, 6, both pistons are ascending. The cylinders being full of air or of any other elastic fluid, compressed or otherwise, at the commencement of the stroke, the air in them is diminished in volume by the descent of the pistons until a point is reached seen in the dotted line, C, at 3, that is until the arms of the toggle, *b e*, are in line; psssing this, at the point 4, dotted line, D, the piston, *n*, has attained its lowest depression; each piston, after passing its respective point of lowest depression, by the elasticity of the air or other elastic fluid, contained in its cylinder, contributes power during the remainder of the stroke. The central lines of the air tight cylinders are shown placed immediately under the points of one-third and two-thirds stroke of the piston, respectively. Should it be wished that the pistons should reach their greatest depression at one-third and two-thirds stroke respectively, the distance between their cylinders, *o p*, must be increased, until the points of attachment of the arms, *e f*, on the blocks, *g h*, are on a line respectively with 2 and 5, and the centre, *c* when the arm, *b*, is brought into the same straight line respectively with the arms *e* and *f*. Any other required variations are made by altering the position of the cylinders or their number.

More information may be obtained by letters addressed to the inventor.

A new Coffee Huller.

Robert Walker, of this city, has invented a new machine for extracting the hulls and impurities from coffee, for which he has taken measures to secure a patent. The important features of the invention consist in an arrangement by which one cylinder is made to revolve within another—the external surface of the smaller and the internal surface of the larger being covered with wire gauze or cloth, by which the hulls are scoured from the kernels by the revolution of the cylinder; a series of beaters are also placed upon the periphery of the revolving cylinder, which serve to break the hulls from the coffee, and also to drive it from the end of the cylinder where it is introduced, to the opposite end, The external cylinder is stationary and nearly air-tight, so that a current of air may be drawn through between the cylinders, and the impurities of the coffee extracted and conveyed to a remote place of deposit, instead of being thrown into the room to injure the lungs of the occupant.

Improvement in Valves.

John E Anderson, of this city, has invented a balance throttle or regulator valve for which he has taken measures to secure a patent. In his constructien two cylindrica valves are used, which are made to balance each other perfectly, and are made to operate vertically, the steam being admitted through one valve in its downward motion, and the other in its upward motion—to the same end of the cylinder of the engine—and vice versa to the opposite end, in this manner the steam may be admitted with any amount of rapidity required, and the regulator and consequently the valve will be affected by very slight changes in the speed of the engine.

New Mode of Constructing Rocking Chairs.

John Middleton, of Newark, N. J., has invented a new mode of constructing rocking chairs, which makes them more portable than heretofore, and at the same time equally easy and convenient for use. They may be folded up so as to occupy but a very small compass when it is required to carry them from one locality to another, or when they are not desired for use. The improvement is in the manner of connecting the severel parts of the frame together, so as to be easily, folded. The rockers are connected by joints and pivots, so that one end of the rockers may be detached from the legs when not in use. Measures have been taken to secure a patent.

The natural salt ponds on the Florida Keys, which, in 1848, yielded about 75,000 bushels of salt, have been, during the last winter greatly improved and extended, so that the evaporating surface is now 600 acres, and will soon be increased to 800. During the winter the ponds have contained pickle sufficient to make 500 bushels of salt.

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Scientific American

NEW-YORK, JULY 2, 1853.

The Dignity of Labor.

Professed philanthropy is a very cheap and common commodity. There is an exceedingly plentiful amount of wordy sympathy at the present day for working people, hence great swelling articles about the "dignity of labor" are paraded with extraordinary frequency and in prolific abundance. Being the professed advocates of industry, we at once say that there is neither dignity nor disgrace connected with labor—mental or physical—in itself apart from the object of labor. If physical labor is of a dignifying nature, then the horse, ox, and steam engine possess a greater amount of it than man. If mere mental labor is of a dignifying nature in itself, then forgers and plotting gamesters must stand on very elevated positions on the ladder of dignity. The majority of articles which we have read on the dignity of labor are calculated to deceive our working people; it is for them they are intended, and their tendency is injurious. Idleness is an evil, and industry as its counterpart is a righteous duty, but at the same time, intense labor in any cause, or at any business, whereby evil is done, cannot dignify the actor, however assiduously he may toil to accomplish his infamous ends. Mechanical and mental toil are honorable and dignified only because of the aims and objects of the laborers; the noble man (not titled) confers dignity upon the labor in which he is engaged—the labor cannot confer dignity upon him. We know it is no uncommon feeling among all classes of rich and poor, to make wide distinctions, one looking down or up to another because of its particular profession or trade. Great excellence in mechanism, skill of hand, and mental ability will always command admiration, but the feeling we would desire to see generally cultivated, is respect for all wise and honest men irrespective of their kind of labor. At the same time let us say that this feeling is more prevalent than some frothy philanthropists would have us believe. The great difficulty with many men is to make them respect themselves—they have not the correct idea of true dignity. A man cannot always choose his trade or profession, but he certainly can choose his character. It is as easy for a mechanic to be a gentleman, and work amid oil, steam, and iron every day, as it is for a man who is worth his tens of thousands. It is also as incumbent upon every American mechanic to be a gentleman, as if he were a minister or professor; there is no excuse for any of our mechanics being less than gentlemen, and certainly some of them are much finer gentlemen than many who ride in their carriages. "'Tis worth that makes the man," and nothing else. Every man should live in such an atmosphere as to feel independent of his kind of labor, his dignity lies in his character—the man. To every working man we would say, look upon yourself with respect, be intelligent, honest, industrious, with grace in your speech and conduct, and never give yourself a thought about the dignity of labor. If you are poor, none but fools will look down upon you as wanting in dignity because of your kind of labor. If a man is poor, not by his own fault, it is his misfortune, he cannot help that. A man may also be very illiterate from the lack of opportunities to improve his mind, that is also not his fault; if he strives to do well, he labors with a dignified aim, and for this he should be respected.

In civilized communities, intelligent and moral worth exert the greatest influence; it is a law of the mind, that the civil qualities command respect, and for this reason, we often, as part of our duty, have to direct the attention of many of our readers to those qualities which dignify the man, in order that they may not be led astray from the true path of duty. At the present day there is no excuse for ignorance on the part of any young man in America, whatever his occupation may be, —whether a mechanic or merchant; if he is not intelligent he is wanting in an essential element of true dignity.

Preserved Milk, Coffee, Tea, and other Extracts.

Gail Borden, Jr., formerly of Texas, but now of this city, to whom was granted a Council Medal at the World's Fair of 1851, for his celebrated meat biscuit, has taken measures to secure a patent for some exceedingly valuable improvements in preparing and concentrating sweet milk in such a manner that incipient decomposition is completely prevented, and a concentrated extract produced either in cakes, or in a more fluid state, which will keep sweet in any climate for months and perhaps for years. We have kept a quantity of this milk for three months, and although it has stood in a tolerably warm place, it is as sweet to day as when we received it.

Mr. Borden, by the same improvements, extracts and concentrates coffee, tea, and other useful dietary matters, and produces those extracts in such a form that the strength of a pound of coffee can be carried in a vessel no larger than a small tea cup, and it will keep fresh in any climate, and for a number of years. We have given samples of the coffee, prepared by Mr. Borden repeated trials during the past four months, and cannot but speak in the most favorable terms respecting its good qualities, and the real benefits which we anticipate from its introduction into public use. For persons going on sea voyages, or on long overland journeys, a few small tin canisters will be sufficient to equip them for partaking, with a little warm water, of a good milk and coffee beverage, properly sweetened, in the midst of the ocean, or in the depths of the forrest.

For domestic use it will be the means of saving much in families, especially in warm weather, and at no time need there be any necessity for a person taking a cup of milkless coffee, even after a thunder storm, or a week of hot weather, with the thermometer daily at 97° in the shade, as it has been in this city during the past week.

The means by which Mr. Borden prepares his extracts are new, ingenious, and philosophical, but as measures are adopted for securing patents abroad, we cannot describe them at present, suffice it to say that although milk and other vegetable extracts have been made heretofore, the new process is entirely different and very superior. The milk prepared by the improved process of Mr. Borden, even after it is months old, will, when dissolved in warm water and left to cool, produce a beautiful and sweet covering of cream. The coffee and tea have all their aroma preserved, and retain all their peculiar qualities. In large dairies at a distance from cities, large quantities of sweet milk can be prepared by Mr. Borden's apparatus, and sent down to be sold in every grocery, and it may yet become as common to ask for a cake of milk as it is now to ask for a *quart*. The mode of preparing these extracts is economical, safe, and certain, and we believe it is one of the best and most useful improvements that has ever been discovered.

Railroads for Broadway.

If Broadway, the great aristocratic street of New York City, was a living identity, and could appreciate the attention and devotion of its admirers, it certainly would be filled with a most intense conceit of itself. Broadway is a crowded street, and to relieve it from confusion, various schemes, from time to time, have been proposed, railroads being the suggested remedies. Railroads on the street, a railroad over the street, one on each side of the street, and one under the street, have all been planned and proposed. Various suspension railways have been invented, and some of them are not of a very recent date, but we never expect to see an elevated railroad in it, although almost every inventor who has given the subject attention has concluded on suspending his rails. The owners of property are the persons to consult about allowing such a railway, for there is nothing impracticable in it. The only railroad to relieve Broadway that has received any favor, has been one of two tracks to be laid in the street. The present Common Council—sometimes in irony called *Ali Babi's* gang, granted to a certain company in this city, the privilege of constructing such a railroad, for a certain equivalent, and measures were taken to prosecute the work; but some of the citizens believing that our magistrates acted wrong in granting such a privilege, especially as higher offers were made for it, brought the subject before our courts, and obtained an injunction to restrain its construction. Our Common Council in their prosy wisdom, treated the decision of the court with great contempt, and for so doing were found guilty of misdemeanor. The case, however, is not finished yet; it has formed a fine fat job for the lawyers, for it is still banging away in the Superior Court, and no one can tell when it will be finished up. In the mean time let us say to those inventors who have recently proposed so many elevated railways for Broadway, exercise your patience, not a little, but a great while longer, and wait the progress of events in the case of *the railroad* now at law. If it gets out of such a place without being the greatest rascal that ever rode upon a rail, we are greatly mistaken. We believe that a good railway would be a benefit to Broadway, and we have so expressed ourselves, but we have also said, and entertain the same opinion still, that no railroad should be constructed through any street against the will of a majority of the owners of property in it.

Patent Pavements.

In another article we have presented the case of a railroad at law, caused by the incapacity or rapacity of our Common Council; we have also a few words to say respecting a *pavement* at law. The Common Council of New York City made a contract with a firm named Russ & Reid, for paving one of the streets with what is named the "Russ Pavement." The contract granted to Russ & Reid allowed them $6,50 per square yard, while another responsible person offered to do it for $3,50 per square yard. A perpetual injunction has therefore been moved for to restrain the execution of such a contract, and we hope it will be granted. What is called the "Russ Pavement," is no doubt a very excellent one, but no Mr. Russ ever invented it, and it is no youth. It has been contended that as Mr. Russ has a patent, the contract could not be given to any other person. It is true that a patent was granted in March 1848, to Mr. Russ, but not for a pavement (although we believe he applied for that) but for making the under stratum of concrete below the pavement, *in pannels*. The patent was not obtained for the concrete understratum, for that was used before he was born, but for making it *in pannels*.

No one, therefore,, can use his pannelled concrete, but all the rest of the pavement, viz., concrete understratum and granite surface blocks, are common property. It is our opinion that our streets can be paved for $3,-50 per square yard, with as good blocks, and in as substantial a manner as any that ever was laid down.

Events of the Week.

City Domestic Telegrph.—A number of gentlemen are making arrangements for the purpose of setting in operation a Metropolitan Telegraph for communication with all parts of this city. The present idea is to establish in the upper part of the town ten offices, with House's printing instrument, and wires connecting with the office in Wall st. They will transmit brief messages for a very small sum, and must necessarily do a large business. In fact, it is not improbable that the telegraph may be so extended as to do nearly all the real business correspondence between up town and down town. The post office is too slow, and we want such a telegraph.

Another American Yacht for Europe.—The beautiful American yacht Silvie, of 105 tons burden has left this country under the command of Capt. Comstock, for the purpose of contending for the prize at the yacht race off Cowes, on Tuesday the 2nd of August next. The Silvie was built by Mr. George Steers, the successful builder of the America, and at the same time. It is confidently stated that the Silvie is the fleetest sailer of the two, and on that account her success in coming off the victor is sanguinely expected.

Ship Challenge.—Chambers & Heiser of this city, have offered to run their clipper ship Sweepstakes a race of 2,000 miles out and back, against any other ship for $10,000, the rules and regulations to be prescribed by the New York Yacht Club.

Cotton Picker.—A. H. Burdine, of Panola Co., Miss., has invented a machine for picking cotton from the stalk, by which, it is said, one hand can gather as much as two without it, and in much better condition.—[Charleston Mercury.

[We hope this is true, but to be successful it must do more than pick twice the quantity of one hand.

Dock Failure.—A correspondent of the "Savannah Courier" pronounces the Naval Dock recently constructed at Pensacola a failure. The frigate Columbia was taken up in it, but the dock swagged in the centre, and the ship was so pressed that the doors of her ward room could not be closed. It was also found impossible to take the dock, with the ship on it, into the basin prepared to receive it.

Table Moving Abroad.—By the recent accounts from Europe the table moving phenomenon had become quite a rage among the savans of Paris; and had furnished a theme for fact and fancy articles in the papers.—The spirit rappings had also found believers among some of the sages in England. Robert Owen, the famous communist, and now nearly 80 years of age, has become a believer in communicating with departed spirits by raps on a table. We do not know what the next movement will be, but we hope it will be a movement of Prof. Porter's celebrated æroport in the atmosphere on its journey to California, Japan, or some other place far away on the other side of Montezuma swamp.

Singular Phenomenon.

We have received a letter from Professor A. C. Carnes, of Burritt College, Tenn., with the following account of a singular phenomenon, that was seen by a number of the students, on June 1st., at 4½ A. M., just as the sun was rising:—

"Two luminous spots were seen, one about 2° north of the sun, and the other about 30 minutes further in the same direction. When seen, the first had the appearance of a small new moon; the other that of a large star.—The small one soon diminished, and became invisible; the other assumed a globular shape, and then elongated parallel with the horizon. The first then became visible again, and increased rapidly in size, while the other diminished, and the two spots kept changing thus for about half an hour. There was considerable wind at the time, and light fleecy clouds passed by, showing the lights to be confined to one place."

The students have asked for an explanation, but neither the President nor Professors are satisfied as to the character of the lights, but think that electricity has something to do with it. The phenomenon was certainly not an electrical one, so far we can judge, and possibly was produced by distant clouds of moisture.

To the New York Evening Post.

The "Evening Post" will confer a favor upon an anxious people by letting them know how its Ericsson engine works—how it makes the presses fly, how much fuel it saves, and any other item of interest connected with it. It is now two months since the engine prepared for the *Post*, was to be sent to France, and another was to be constructed at once. The said engine could certainly be duplicated in one month, consequently, we infer the "Post's" engine must be in operation.

Models.

We have a number of models in our office which lack the name and residence of the inventors. We cannot therefore communicate with them. By simply attaching a card bearing the name and residence of the inventor, delay and annoyance is thereby saved.

A lump of wet saleratus, applied to the sting of a wasp or bee, it is said, will stop the pain in one moment, and prevent it from swelling. Pin this fact up somewhere for this season's use, for those who are not fond of the sensation of a sting.

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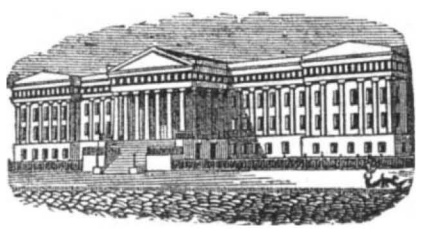

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 21, 1853.

CUT OFF FOR STEAM ENGINES—By Horatio Allen & D G. Wells, of New York City: We claim the mode of operating the loose toes by means of sectors combined with the rock shaft, and operated as described.

PIANOFORTES—By Benj E. Colley, of Cambridge, Mass: I claim throwing the fly of the jack from the arm which operates the hammer each time the note is struck so as to permit its blocking in the said arm by the bent lever and set screw operating independent of the hammer and hammer arm, in the manner set forth.

PRINTING PRESSES—By Wm. H Danforth, of Salem, Mass.: I claim, first, the employment in one printing press of two parallel type forms, one above the other, and two platens so arranged in a frame as that a sheet of paper can be printed by each form at one impression, as described.

Second, I claim the mode of feeding the paper between the griping bars and bands, which hold it in place to receive the impression, and pass the sheet forward while the inking roller occupies the intermediate space to ink the type

Third, I claim making the feed boards unequal in thickness, as described, for the purpose of furnishing an opening between the two sets, at the time that the sheets are to be entered from the tympan.

Fourth, I claim the employment of a series of griping or discharging cross bars, in combination with, and so arranged upon two endless bands as to be made to act upon the leading edges of the sheets as they pass along, and hold them against the feed bands until they have passed across over the top of the pile upon the platform, as shown, for the purpose of piling the printed sheets.

5th, I claim the device for giving and checking the motion of the feed bands, alternately as required, consisting of the vibrating lever, bar, reciprocating rack, connecting wheel, two feeding wheels, fast wheel, or disc, spring pawl, adjustable cam, pin, studs, arm, rocking shaft, cams, pawls, brake, spring, and cylinder, arranged and operated as shown.

JACQUARD LOOMS—By J. A. Elder. of Westbrook, Me.: I claim, first, the arrangement of two trap-boards, placed the one above the other and between the suspension board and needles.

Second, I claim two trap-boards, arranged the one above the other with their slots in opposite directions to the knot cord holes, when combined with the knot cords, having a knot for each board and a single set of needles for the purpose of vibrating the knot cords from the slots in one board to the slots in the other, as set forth.

BOG CUTTING CULTIVATORS—By E. L. Freeman, of Ann Harbor, Mich.: I claim the precise construction of the tooth and placed in the position as set forth, that is to say, the vertical part and the horizontal, each having a backward slant.

METAL PLANING MACHINE—By F. W. Howe, of Windsor, Vt.: I claim combining with the endless chain and the primary tool carriage, the two slide boxes, or their mechanical equivalents, the binders, rock lever, and its operative mechanism, viz., the rod, eccentric, shaft, and lever, or the mechanical equivalents of such rocker lever and operative mechanism, the whole being made to operate as described, and for the purpose of enabling a person to readily produce a movement of the tool carriage, either to the right or left, while the endless chain has a continuous motion in one direction, as set forth.

CULTIVATOR PLOWS—By Wm. S. Hyde, of Townsend, Ohio: I claim the cultivator, as described, with adjustable supplementary wings, so constructed as to cultivate the soil superficially near the roots of the plants, and deeper at a distance therefrom, the wings being adjustable to any required angle with the bottom of the furrow, so as to give any desired degree of inclination to the sides of the ridges or hills, and to change their inclination from time to time, to adapt them to the varying stages of the growth of the plant, as described.

PLUG CUTTING MACHINES—By Simon Ingersoll of New York City: I claim the combination, as described, of the slide bar, I, having studs or projections, and the slide bar, J, having studs or projections, being all so arranged in relation to each other, that the devices which move both slide bars longitudinally, shall first give motion to the slide bar, for the purpose of forcing the dogs into the board or disc therefrom, previous to their retrograde motion for commencing a new feed.

(See notice of this invention on page 44, Vol. 8, Sci. Amer.)

CUTTERS TO HARVESTERS—By J. H. Manny, of Waddam's Grove, Ill. Patented in England, Dec. 9, 1852: I claim a cutter, or sickle composed of a series of lozenge shaped blades attached to a bar, as set forth, whereby the pressure of the grass on the front corners of the blade is so counteracted that the latter are not bent down from the edges of the guard fingers against which they cut

HILL SIDE PLOWS—By David H. B. Newcomb, of Conewango, N. Y.: I claim arranging the two shares of a double plow, which alternately run forward on a central wheel, in such manner that the share, which for the time being is in the rear shall be carried above the bottom of the furrow, as described.

I also claim the method of relieving the swivel and of steadying and supporting the beam when set, and in turning by means of a semi-circular guide or means of a semi-circular guide or track arranged and operating as set forth, in combination with a catch at each end of the track to hold the beam in place when properly adjusted.

ELECTRO-MAGNETIC ALARMS—By A. R. Pope, of Sommerville, Mass.; I claim the combination of the movable or vibrating armature and the spring circuit breaker, with the hammer of the bell, the same to be used in connection with the electro magnet circuit wires and a key, as described, applied to a door or windows, the whole being made to operate together, as specified.

SEED PLANTERS—By George Rohr, of Charlestown, Va.: I claim the invention, use, and application of a ridged or fluted or corrugated vibrating apron device combined with the oscillating screen or grain scatterer, arranged with a crank handle axis actuated by the pins or cogs on the scollop-like hub flange of the propelling wheel, together with the re-acting spring rest, as shown. The whole arranged and used together with a seed fountain, with apertures so constructed as to admit of connecting thereto short detachable or movable mouth pieces, or outlet spouts, for the more perfect and free escape of the seed from the grain chamber or fountain, on to the apron and scatterer, specifically as set forth.

LATH MACHINES—By J. R. Shank, of Buffalo, Va: I claim imparting a vibratory motion to the gauge bar, in the manner described, so that it will not only perform the function of a gauge bar to regulate the thickness of the lath, but also that of a slipper, in order to insure the separation of the lath from the block, for the purpose described.

EXPANDING MANDRELS FOR TURNING MACHINERY—By Walter Sherrod, of Providence, R. I; I claim a divided spring shell constructed in the manner described, when it is combined with a tapering mandrel so that by its own elasticity it shall retain its position on said mandrel, the whole arranged constructed and combined in the manner set forth. Not meaning to claim the combination of a tapering mandrel with a shell divided into more than one piece and tapering on its interior surface being held on said mandrel by a spring clasp.

HORSE COLLARS—W. McK. Thornton, of Bloomsburgh, Pa.: I claim a horse collar formed with pad flaps, by the extension of the face leather of the pads as described.

I also claim the manner of stiffening and uniting the pads by means of a metallic bow, the ends of which are rigid to stiffen the shoulder pads and support the tugs, while its arch is flat thin and flexible in one direction to allow the pads to change their relative distance apart, and comparatively rigid in the other direction to prevent the pads from turning with respect to a plane parallel to the front of the collar.

IMPROVEMENT IN SAWS—By J. H. Tuttle, of Seneca, N Y: I claim the combination, arrangement and location upon the same blade of the sets of fleam teeth for scoring the sides of the kerf, and the set of planing teeth for removing the wood between the scores when said planing teeth are placed back to back, curve in opposite directions, and are between the sets of fleam cutters, and at sufficient distances apart, so that each planing tooth shall serve alternately as a gauge to its fellow, while allowing it to cut to a proper depth and be a permanent guide to the fleam cutters, to prevent any of the teeth from taking too rank a hold upon the wood, which makes it run with great ease and efficiency, and is applicable to slitting or cross-cutting, as described.

[This is a very valuable invention.—ED. SCI. AM.)

HILL SIDE PLOWS—By J. B. Wilder, of Belfast, Me.: I do not claim a revolving share and mould-board attached permanently to each other But I claim having the mould board. so constructed, arranged and attached to the share, and land side plate, that said mould board, may be turned, as set forth, independently of the share, and a proper curved outer face be presented to the sod, on either side of the plow, the mould-board being constructed with two faces precisely of the form shown.

[See notice page 124, Vol. 8, Sci. Am.]

METALLIC POINTED PENS—By B R. Norton, of Syracuse, N. Y. I claim a metallic pointed pen attached to a wire of the length required to form a handle or holder, when such pen and holder are covered from the top of the holder to near the nib of the pen by a coating of gutta percha, or india rubber of suitable thickness, made in the manner set forth.

PROPELLERS FOR CANAL NAVIGATION—By Wm. F. Tyson, of Orwigsburgh, Pa. Ante-dated Dec. 21, 1852: I claim the blades constructed with lips or rims which are sections of a cylinder concentric with the axis on which the propeller rotates. as specified.

SIDE LIGHTS FOR SHIPS—By Enoch Hidden, of New York City: I do not claim ship lights turning on pivots, or center pins in frames. Nor do I claim ship lights in frames turning on hinges, but I claim the arrangement of screws tapped into the main frame, in combination with inclined planes or spirals, forming part of said screws that holds the light frame, or cell containing the glass, fast to the india rubber in its grooved seat, in the main frame with its step pin, for stopping the screw in its proper position, when the light is to be opened for ventilation.

I also claim the projecting ears, with slots or chase mortises, in which the pivots of the light frame or cell turns, allowing the light to be hauled from its seat, and consequently out of contact with the india rubber so as to allow the plane of the light to be placed at any angle to the main frame, thus freely admitting of ventilation.

I also claim the arrangement of a lead or other ductile metallic ring, soldered on, otherwise joined to the main brass frame of the light, so that it can be turned round the outer edge of the opening in the vessel, securing any suitable material completely, making the main frame of the light water tight to the vessel, as set forth.

ENVELOPE FOLDING MACHINES—By R L. Hawes, of Worcester, Mass: I claim, first, the combination of the self-adjusting feed table, with the paste fountains so arranged as that they will descend and press a freshly parted surface of their rollers upon the top sheet, and raise it to permit the table to pass beneath and take away a sheet at every second revolution of the main shaft

Second, I claim the combination of the platform with the hooks, and the retaining fingers, and the fingers for discharging, for the purpose of properly conveying and discharging the sheet or envelope.

Third, I claim the combination of the platform with the follower or first presser, and its weight or retainer, as described

Fourth, I claim the finishing folder consisting of knives, with their adjustable springs and guides, in combination with the finishing plunger, to press the envelope and cause the three flaps to adhere together or one to the other.

Fifth, I claim the arrangement for raising the table, in combination with the fingers for discharging finished envelopes.

RE-ISSUE.

MOULDINGS—By A. T. Serrell, of New York City. Patented May 16, 1848: I claim, first, the combination of the ring or rings with a cutter or cutters for operating on an angular strip for making a moulding; whether the said cutter or cutters be rotating or stationary, or both, and whether the said cutter or cutters operate on the face or on the edge of the strip, or on both the face and the edge as described.

Second, the combination of the adjustable bed with the ring or rings and a cutter or cutters, as aforesaid, for operating on an angular strip for making a moulding; whether the said cutter or cutters operate on the face or on the edge of the strip or on both the face and the edge, as described.

DESIGNS

COOK STOVE—By J. T. Davy, of Troy, N. Y.

COOK STOVE—By John Sabey, Jr., of Rochester, N. Y. (assignor to J. K. Griffin, of Waterdown, Canada West.

COOK STOVE—By Everard Bolton, of Northern Liberties, Pa.) assignor to Abm. & Jos. Cox, of Philadelphia, Pa.

Improvement in the Manufacture of India Rubber Goods.

By reference to page 254, Vol. 8, Scientific American, our readers will perceive that a patent was granted to Charles Goodyear and Robt. Hearing, assignors to Charles Goodyear of New Haven, Ct., for an improvement in the mode of manufacturing goods from india rubber, gutta percha, &c., and a patent was granted in England, for the same process in 1851. The following abstract of the specification, will be interesting to many of our readers. It contains all of importance embraced in the patent:

"The improvements made are in the moulds which give form to the vulcanized rubber. &c., heretofore metal moulds have been used without good results. The invention consists in using or employing sand pulverized soapstone, plaster, or some similar granular, or pulverized substance, and when put together form porous matter, or moulds made of porous substances, to sustain and keep the form of moulded articles composed of caoutchouc or its compounds, and other gums susceptible of vulcanization during the process of heating or vulcanization. We take articles composed of compounds of caoutchouc or other gums susceptible of vulcanization in the green state. We cause them to be pressed or otherwise formed into the exact shapes which they are required to have, after being vulcanized; we then cover the surface of the articles with pulverized soapstone, or plaster, or other similar non-adhesive powder. We then place the articles in a box filled with sand, the finer the sand the better, or pulverized soapstone, or other similar equivalent granular or pulverized matter, so that each article shall be completely surrounded and covered by the sand or pulverized soapstone or plaster, &c., and imbedded in the same, and thereby sustained when it is desired to give a very smooth surface to the article, we cause it to be completely surrounded with a layer of soapstone, even though sand may be employed about the layer of soapstone. We sometimes use moist sand or pulverized soapstone. When the articles are thus properly placed in the box, we subject the sand or other material to pressure, so that the box shall be solidly filled; we then by means of a cover, or sometimes by pressure, confine the sand or other material so that the articles shall be at all times in contact with and pressed upon by the sand or other material during the process of heating. We then place the articles surrounded with and sustained by sand or pulverized soapstone or other material in an oven or heater, and subject the same to a high degree of artificial heat, moist or dry heat, say from 260 to 300° Fah, for a period of from three to seven hours, and upon taking the articles out of the sand or other material, the articles will be found to be vulcanized in the same form in which they were when put into the sand; we are thus enabled to produce economically great variety of objects. Among them, embossed, or indented, or plain sheets or plates or masses of regular or irregular forms, convex or concave, such as pieces of furniture, book covers, buttons, toys of various kinds, &c, or we make the moulds of plaster of Paris, (best calcined), or other substance, which, when dried will be porous and permit the escape of gases evolved from the matter under treatment, and all contained air, and thereby prevent the expansion of confined air and other gases from injuring the surface of the moulded substance, or we mould the article in a mould which is to produce the figure, and pack in sand, or pulverized soapstone or other like granular pulverized substance to support the other surface or surfaces of the article to be produced, and thus keep the face, which is to be figured, in contact with the partial mould of metal or plaster, or other material, and thus afford a free discharge for air and gasses, whilst at the same time the moulds are greatly cheapened. The moulds or outer casing may be made of glass instead of iron or other metal, but we prefer the first mode of procedure, as it avoids entirely the use of moulds during the process of vulcanization. The sand or other pulverized or grandular material, having the effect thoroughly to support and retain the form previously given to the article by moulding or modelling. The prepared caoutchouc, gutta percha, &c., if it is to be imbedded in moistened plaster should be previously varnished, and to keep the surface of such articles to be thus vulcanized in sand, smooth india paper, should be interposed between such surface and the sand.

The claim for this invention may be found on page 254, as above stated.

TO CORRESPONDENTS.

J. F., of Ohio—We are much obliged to you for the information.

J. C, of Pa.—We entered the five names for six months each, and marked your own subscription up one dollar's worth. Downing's Architect, published by G. P. Putnam, this city, would answer your purpose.

O H. H., of Ill.—It was in Vol. 4, Sci. Am., that the History of Rotary Engines was published; we have not a copy to sell at any price

W. L B, of Conn.—We cannot tell you the greatest number of revolutions that has been or can be obtained by any known power; nor are we aware that any other person can.

J. H. C., of N. H.—The Barker is truly a re-action wheel; this we knew. Your plan, as exhibited in the sketch, is as good as any other known to us, if you introduce your water in a correct manner. You infringe no patent that we are acquainted with.

N. B., of N. C.—Your question is difficult to answer. Measure the quantity of water which falls in a minute, then allow 62 1-2 lbs. for each cubic foot; multiply by 7, and this divided by 33,000 will give the result in horse-power. Give us the advance from the surface of the inlet water, and we can tell you the horse-power of the water—not otherwise.

A. M. G., of S. C.—The water will rise in the funnel and tube to the same height, if both are open and actuated by one pump placed to operate both, but not as in your diagram. Your railroad signal would not answer, the noise of the engine would prevent the engineer hearing the bell.

W. H. M., of Ind—No doubt your conclusion in regard to the patentability of the invention referred to were correct. The application of Mr. S. was not made through our office; the article in question was a communication.

D. W. F. B., of La.—We do not know of any hook and eye machines for sale in this city

E. A. R., of Ala.—Spring wheels for carriages are old and well known; we saw a carriage on the same plan at least 15 years ago.

W. A., of Mass.—The improvement you describe for propelling is illustrated in Vol. 5, Sci. Am.

C. B. B, of Ga.—We do not discover anything new or patentable in your apparatus for churning, and we advise no outlay of money for that purpose.

L. G., of N. Y.—It has been suggested to employ a single flange in the centre of car wheels on one side only, and a plain wheel on the other side. A model was shown us, but for some cause it has not been adopted; we suppose these are good reasons, and if this is true your plan is liable to the same objection.

J. S., of Va.—It is true, what you say, but it is quite common to have the same screen frames as those you speak of in our windows to keep out flies, &c.

U. B. V., of Pa.—Your improved brake appears to be a good one, but not new; last fall a model was shown us at the American Institute Fair, which embraced almost entirely the same contrivance.

J. S, of Pa.—The improvements in car axles are not new, the same thing has already been done. The other part of your letter we will consider.

G. F. McM.—We think a machine for the purpose you name would be very useful; we know of nothing in use which answers a good purpose.

F. P., of Pa.—S. C. Hill, No. 12 Platt st, this city, will furnish you with a good boring and mortising machine at a reasonable price.

H. L. M., of Pa.—It is our opinion that your railroad chair and tie is not patentable. the same thing has been shown to us before.

R. P. J, of Pa.—We cannot discover a patentable feature in your device for gathering apples; essentially the same thing has been used.

J. P. S., of Ala—We have referred your letter about books to Messrs Harper & Bros. We could not give the information desired.

T. F. R., of Ohio—We have sent your letter to the parties named in the article; we could not give the information.

Money received on account of Patent Office business for the week ending Saturday, June 25:—

C. B., of Mass., $25; T. & D. A. H., of Pa, $30; J. B W., of N. J, $60; M. H., of N. Y., $10; F. B B., of Me, $30; J. B., of Ct, $50; C. C. L, of N. Y., $25; C. S., of N. Y., $7; E. B., of N. Y., $100; S. & G., of Ct, $25; H L., of Mass., $10; D D, of N. Y., $16; J. M., of N J., $25; A C. R, of N. Y., $32; J. E. M., of Ct, $85; W. W., of N. Y.; $25

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday June 25:—

C. B., of Mass.; J. H. McG., of Ohio; T. & D. A. H., of Pa.; F. B. B., of Mo; C. C. L., of N. Y.; S. & G. of Ct.; W. D. E., of Miss.; W. W, of N. Y.; J. E M, of Ct. (2 cases); J. M., of N. J.; T. R. & Co., of N. Y.

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ST JOHNSBURY, Vt May 21, 1852.

Geo T McLauthlin, Esq., Dear Sir: Having fully tested the operation and capacity of the Rider Water Wheel, we purchased of you, we have much pleasure in saying that it exceeds our expectations, and is an invaluable acquisition; it is now used for propelling all that portion of our machinery, which we have been accustomed to drive with the combined power of a first class steam engine of thirty horse-power, and a tub water wheel of nine feet diameter. For several days during the spring freshet the wheel was submerged to the depth of more than three feet by back water without any perceptible diminution of speed or strength. We consider it the best water-wheel of which we have any knowledge. Respectfully yours, E. & T. FAIRBANKS & Co., Patent Scale Manufacturers.

TO FRENCH AND GERMAN CLOCK AND Watchmakers, &c Wanted, in a manufactory of good lime pieces, desirably located in a neighboring city, five or six competent workmen, to whom permanent employment and good wages will be given. Apply to PETER A. FRASSE, No 95 Fulton st., N. Y. 42 2*

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Marlandville, near Phil., Pa., May 25, 1853.

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SIXTH ANNUAL EXHIBITION OF THE MARYLAND INSTITUTE, will open at the unrivalled Hall of the Institute, in the city of Baltimore, on Monday the 3rd day of October, 1853, where articles for competition and premium will be received from Monday, 26th, to Thursday 29th of September, inclusive; after which deposits will be entered for exhibition only. To this Exhibition the artists, inventors, manufacturers, &c., of the entire union, are cordially invited to contribute. The central location of Baltimore, and the high reputation of the Maryland Institute Fairs, will afford them very great advantages in introducing their articles to the public, as there will congregate a great number of persons from every part of the Union. Circulars and any information required will be promptly furnished by application, post paid, to John S. Selby, Actuary. THOS. TREMBLE, Chairman of Exhibition Com. 40 6

PORTABLE FORGE AND BELLOWS—THE Subscriber, successor and sole manufacturer of Queen's Patent Portable Forge and Bellows, offers the same to the public as the best in use for blacksmiths, machinists, boiler makers, coppersmiths, shipping, railroads, mining, quarries, public works, &c., &s; also a superior jeweller's and dentist's forge, and which is frequently used in laboratories for chemical operations These forges are constructed with slides for closing up or they can be placed in any possible position required for safety, and the entire escape of all smoke and gases to the chimney when used in-doors, also prevents any interference to the fire by wind or rain, when used out-doors or upon shipping Circulars containing full particulars and certificates will be forwarded upon application. FRED P FLAGLER, Wholesale and Retail Dealer, 210 Water st N. Y. 40 4*

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CAUTION TO MANUFACTURERS of Wrought Iron direct from the Ore.—All persons are cautioned against infringing the patent of C. S Quillard, granted Dec. 23rd, 1841, "for combining one or more reverberatory furnaces with a chimney or stack, containing in its lower part a deoxidizing vessel, in such manner that it and the contained ore and carbonaceous matter shall be heated by the flame and escape heat from the reverberatory furnace or furnaces." The undersigned are prepared to dispose of rights to use the ame on liberal terms Charles M Dupuy, Jr., Rondout, Ulster Co, N. Y.; C. V. Quilliard, 48 West 29th street, New York, assignees. 39 4*

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PORTABLE STEAM ENGINES—The subscriber is now prepared to supply excellent Portable Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, say 1, 2, 2 1-2, 3, 4, 6, 8, and 10 horse power, suitable for printers, carpenters, farmers, planters, &c, they can be used with wood, bituminous, or hard coal; a 2 1-2 horse engine can be seen in store, it occupies a space 5 feet by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. S. C. HILLS,
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MORTISING MACHINE—"Dear Sirs, I received the Portable Mortising Machine about three weeks ago; I have used it, and am very well pleased with it; it is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.

Nashville, Tenn, 1851."

"Since I have been a subscriber to your paper I have purchased one of your Mortising Machines, for which I would not take double its price and do without it. WM M. FLEMING.

Elizabethtown, Tenn., Jan. 8 1853."

This machine is simple, durable, and effective, and is boxed and shipped for the low sum of $20.
MUNN & CO.

NORRIS WORKS, Norristown, Pa The subscribers build and send to any part of the United States, Pumping, Hoisting, Stamping and Portable Engines, and Mining Machinery of every description THOMAS. CORSON & WEST. 40 1y.

NORCROSS ROTARY PLANING MACHINE,—Decided by the Circuit Court not to infringe the Woodworth Machine—I now offer my Planing Machines at a low price; they are not surpassed by any machines as to amount or quality of work. Tonguing and grooving machines also for sale, doing one or both edges as desired; 80 machines now in operation. Address me at Lowell, Mass.,
39 20* N. G. NORCROSS.

GARDINER'S PATENT MAGNETIC GOLD Washer, Amalgamator and Separator.—This is the most perfect machine for Gold Mining that has been invented; it performs the operation of washing the earth or pulverized quartz rock, amalgamating and magnetic separation of black sand or oxyde of iron, all at one movement, saving every particle of gold dust, however minute. With this machine two men can perform as much work per day as ten by any other process, and save all the gold A full explanation of its operation will be given by the manufacturer. The public are invited to examine. Price $250. Iron Retorts at wholesale and retail.
NORTON & GARDINER,
40tf 47 Dey street, N. Y.

BEARDSLEE'S PATENT PLANING Tonguing and Grooving Machines—These celebrated machines have now been generally introduced in various portions of the United States. More than thirty are now in successful practical operation in the State of New York alone. As an illustration of the extent of work which they are capable of performing, with unrivalled perfection, it is sufficient to state that, within the last six months and a half, over five millions of feet of spruce flooring have been planed, tongued and grooved by one of these machines at Plattsburgh, N. Y., never running to exceed ten hours a day. The claim that the Beardslee machine was an infringement upon the Woodworth patent, has been finally abandoned; and after the proofs had been taken, the suit instituted by the owners of that patent was discontinued, and the whole controversy terminated on the first of November last Applications for machines or rights may be made to the subscriber, GEO. W. BEARDSLEE, 57 State street, or No. 764 Broadway, Albany.
15tf

BARLOW'S UNSURPASSED Planing Tonguing and Grooving Machines Testimonials of the highest character can be given of their superiority over all others in use. For rights or other information. Apply to A. K. Wellington, 184 Twelfth street, New York City. 32tf

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WOODBURY'S PATENT PLANING Machines—I have recently improved the manufacture of my Patent Planing Machines, making them strong and easy to operate, and am now ready to sell my 24 inch Surfacing Machines for $700, and 14 inch Surfacing Machines for $650 each. I will warrant, by a special contract, that one of my aforesaid machines will planeas many boards or plank as two of the Woodworth machines in the same time, and do it better and with less power. I also manufacture a superior Tonguing and Grooving Machine for $350, which can be either attached to the Planing Machine, or worked separately. JOSEPH P. WOODBURY, Patentee, Border st, East Boston, Mass. 29tf

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THE NEW HAVEN MANUFACTURING Company, New Haven, Conn., having purchased the entire right of E. Harrison's Flour and Grain Mill, for the United States and Territories, for the term of five years, are now prepared to furnish said mills at short notice. These mills are unequalled by any other mill in use, and will grind from 20 to 30 bushels per hour of fine meal, and will run 24 hours per day, without heating, as the mills are self-cooling. They weigh from 1400 to 1500 lbs., of the best French burr stone, 30 inches in diameter: snugly packed in a cast-iron frame, price of mill $200, packing $5. Terms cash Further particulars can be had by addressing as above, post-paid, or to S. C. Hills agent N. H. M. Co., 12 Platt st, N. Y. 28tf

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ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers, and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge. Sewall's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc. etc.
CHARLES W. COPELAND,
29 26* Consulting Engineer, 64 Broadway.

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post-paid) MUNN & CO.
At this Office.

PATENT LAWS OF THE UNITED STATES, and information to inventors and patentees; for sale at the Scientific American office. Price 12 1-2 cents

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WHEELER, WILSON, & Co.—Watertown, Ct., proprietors and manufacturers of Allen B. Wilson's Patent Stitching Machine. Patented June 15, 1852, it can be seen at the Company's Office. 265 Broadway, New York. 30 20*

ATMOSPHERIC TELEGRAPH—The English patent (just issued) is now offered for sale at the Company's office. 24 Merchant's Exchange, Boston, Mass. I. S. RICHARDSON,
35tf Agent A. T. Company.

JAMES D. JOHNSON, Bridgeport, Ct., Proprietor of Wood's Patent Shingle Machine. Persons wishing to purchase rights or machines, can address as above. This is unquestionably the best machine in use for cutting shingles. 33tf

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WOODWORTH'S PLANING MACHINES ON hand and manufactured to order, of superior quality at reduced prices, warranted perfect; also steam engines and other machinery. Also Rotary Stave Dressing Machines, capable of dressing staves with the natural growth of the timber, the only one ever invented capable of accomplishing that purpose Rights for sale in various States. JOHN H. LESTER, 57 Pearl st, Brooklyn, L. I. 35 10*

NEW WORKS ON CIVIL ENGINEERING—The Field Practice of Laying out Circular Curves for Railroads: by John C. Trautwine, C. E; second edition, in pocket book form. A New and Rapid Method of Calculating the Cubic Contents of Excavations and embankments, by the aid of Diagrams: by John C. Trautwine, C. E., with 10 copper-plates. Price $1 each; postage on the Curves, 5 cents, and on the Excavations and Embankments, 8 cents. The postage may be remitted or not, as the Post Office does not require pre-payment. For sale by Wm. HAMILTON, Hall of the Franklin Institute, Phila. 35 3m

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NEW METHOD FOR MAKING WROUGHT- Iron direct from the Ore—The proprietors of James Renton's Patent, who have purchased Alex. Dickerson's patent for the above purpose, are desirous of introducing the invention into general use, and invite parties who may wish to negotiate for rights for States and counties, or for furnaces, to make immediate application, and to examine the furnace which is in successful operation at the American Iron Company's Works, Newark, N. J. The invention is exciting considerable interest; gentlemen from all parts of the country, who are engaged in the manufacture of iron, have examined the furnace in its workings, and give it their decided commendation. A circular, giving more minute information, will be sent to those desiring it. The rights for several States and counties have already been disposed of. Applications for rights in the State of New Jersey may address the Hon. J. M. Quinby, President of the American Iron Company. Inquiries or applications for other States may be made to A. H. BROWN, Newark, N. J, Office 107 Market st. 34tf

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STAVE MACHINERY—We manufacture the improved Mowry Stave Machine for slack work, cutting, dressing, and jointing, at one operation, without any handling of the stave until it is finished, after you place the bolt of wood upon the feeding carriage. The machine feeds itself, cutting, dressing, and jointing in a finished and uniform manner 80 to 100 staves a minute. Any kind of timber fit for a stave may be used, even such as could not be rived, as elm, hickory, beach, &c. The cost of running the machine need not exceed, if it equals, 50cts per M, for cutting, dressing, jointing, removing, and piling up, where a machine is kept steadily at work For machinery and rights in the State of New York, apply to CHAS. MOWRY, Auburn, N. Y; for machinery and rights elsewhere, to the subscribers, GWYNNES & SHEFFIELD, Urbana, Ohio. 30tf

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T. J. SLOAN'S PATENT HYDROSTAT—For the Prevention of Steam Boiler Explosions. The undersigned having made extensive arrangements for the manufacture of these machines, are now prepared to receive orders for the immediate application of the same to boilers of every description. They have endeavored to place the instrument within the reach of all, by selling it at a very low price, the cost of one horse-power being only $20, five horse-power, $30, and so on, according to the capacity of the boiler. SLOAN & LEGGETT, Proprietors and Manufacturers, foot of East 25th st, New York. 30tf

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MACHINERY.—S. C. HILLS, No. 12 Platt-st. N Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 40tf

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A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 16tf

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LEONARD'S MACHINERY DEPOT, 102 Pearl-st. and 60 Beaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinists's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting.
40tf P. A. LEONARD

PAINTS, &c. &c.—American Atomic Drier Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.
QUARTERMAN & SON, 114 John st.,
27tf Painters and Chemists.

LOGAN VAIL & CO., No. 9 Gold st, New York—Agency for Geo. Vail & Co., Speedwell Iron Works, Norristown, N. J, furnish and keep on hand Portable Steam Engines of various sizes, Saw and Grist Mill Irons, Hotchkiss's Water Wheels, Iron Water Wheels of any size, Portable Saw Mills, complete; Bogardus's celebrated Planetary Horse Powers; heaving forgings and castings for steamboats and rolling mills, Ratchet Drills of superior quality for machinists, Saw Gummers, Hand drills, Tyre Benders, and shafting and machinery generally.
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GERMAN BLACK LEAD—The best kind for polishing stoves, for sale in bulk by G. O. ROBERTSON, 135 Water st, corner of Pine, N.Y. 38 8*

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C. B. HUTCHINSON'S PATENT STAVE Cutting Machines, the best in use, and applicable alike to thick or thin staves; also his Head Cutting and Turning, and Stave Jointing Machines.

For machines or territorial rights, apply to C. B. HUTCHINSON & CO., Syracuse, N. Y. 36tf

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J. D. WHITE'S PATENT CAR AXLE LATHES—also Patent Engine Screw Lathes, for boring and turning tapers, cutting screws, &c. We manufacture and keep constantly on hand the above lathes; also double slide Chuck and common Hand Lathes, Iron Planers, S Ingersoll's Patent Universal Ratchet Drill, &c. Weight of Axle Lathe, 5,500 lbs; price $600; Engine Screw Lathe, 1400 to 7,000 lbs; price $225 to $675, BROWN & WHITE,
27tf Windsor Locks, Conn.

COCHRAN'S CRUSHING MACHINE—Can be seen in daily operation in Thirteenth street, between 9th and 10th avenues. Parties in want of a machine for crushing and pulverizing quickly and cheaply Quartz Rock, Iron, Lead, Copper, and Silver Ores, and other mineral substances equally hard, are invited to witness the operation of these powerful and simple, but yet effective machines. For further particulars apply to E. & J. BUSSING & CO., No. 32 Cliff st., Y. N. 35tf

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THE NEW HAVEN MANUFACTURING CO. No. 2 Howard st, New Haven, Ct., are now finishing 6 large Lathes, for turning driving wheels, and all kinds of large work; these lathes weigh 9 tons, and swing 7 1-3 feet, shears about 16 feet long. Cuts and further particulars can be had by addressing as above, post-paid, or to S. C. Hills, agent N. H. M. Co., 12 Platt st, N. Y. 28tf.

LEE & LEAVITT—Manufacturers of every description of Cast Steel Saws, No. 53 Water street, between Walnut and Vine, Cincinnati, O. 27 6m*

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SCIENTIFIC MUSEUM.

English Mine Explosions.

There is an excellent article in the last number (12) of "Littell's Living Age," taken from "Chamber's Journal," on the subject indicated by the above caption. It treats of the explosions in the coal mines of England, and it appears from a Parliamentary Report, that no less than 900 lives were lost by mine explosions in the short space of twenty-one weeks, in the year 1852. We entertained the opinion that our own country—America—was distinguished above all others, for great accidents, and a reckless disregard of human life, but we can entertain such an opinion no longer, hidden things will come to light, and England far surpasses the United States in the number of appalling accidents, yea, we are confident that there were not 900 lives sacrificed by accidents in all our country last year, and it was sadly distinguished for a number of fearful ones.

One thing appears to be singularly strange as the *cause* of many accidents in the English mines, it being nothing less than Davy's Safety Lamp. It has come to light that since this was introduced into the coal mines, the number of accidents by explosions, have greatly increased. This lamp is scientifically a safety lamp, but the ignorance of the colliers, and their carelessness, have made it a *dangerous* lamp. It was found in one pit that some of the miners had such a singular notion of its safety powers, that they looked upon its presence in the mine as a kind of charm to frighten away the fire damp, consequently, while one safety lamp was used, others were recklessly burning candles. The miners do not take the trouble nor care to keep their wire gauze clean, consequently it clogs up and becomes useless. There can be no doubt but Davy's lamp works beautiful in a lecture room, but in a coal mine the conditions are altogether different from those of a chemists' laboratory, for it has been found that the wire gauze in some lamps became red hot, consequently an explosion was inevitable. There are two remedies proposed to prevent the frequency of such accidents, viz., the education of the miners scientifically in the use of the Davy lamp, and the expulsion of the gas from the mines by steam jets. If the latter plan be carried out, there will be no use for the safety lamp.

Carburetted hydrogen is the gas which is the cause of mine explosions. It must, however, be mixed with a certain quantity of air before it will ignite suddenly—explode; eight volumes of air to one of carburetted hydrogen forms the most explosive mixture. It has been found that 70 per cent. of deaths in coal mines are not caused first by the explosion, but by the carbonic acid gas as the product of an explosion; so speedy is the action of this gas that the miners suddenly sinks down asleep in death.—Those who die from the effects of this gas sleep away placidly without a struggle.—The coal mines in America are very free from these gases, because they are so near the surface, and are therefore far better ventilated than the deep coal mines of England, nevertheless, let us say to all those who use the safety lamp, "keep it clean or dread the worst consequences."

Petrified Man.

The "Morris (Ill.) Yeoman" states that not long since, while some men were digging in a coal bank near the canal, they exhumed the body of a man in a perfect state of petrifaction. From the corduroy cloth in which the legs were encased; the cords and seams of which are perfectly defined, it is supposed to be the body of one of the Irish laborers engaged in the construction of the canal. The limbs are nearly perfect, and are completely transformed to stone

The valuation of personal property in the city of Cincinnati for the present year is about $14,000,000, being an increase of nearly four millions over the valuation of last year.—|Exchange.

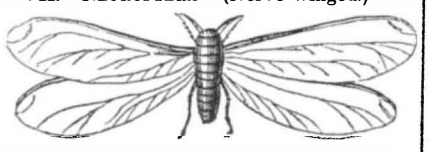
[Well, it is certainly greatly undervalued; for we are much mistaken if there is no more personal property in Cincinnati.

(For the Scientific American.)

Entomology.

[Continued from page 328.]

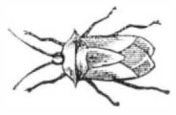
VII.—NEUROPTERA—(Nerve-winged.)



Termes Femina.

The Neuropters have two pairs of transparent wings, beautifully and minutely netted. Most are carnivorous; they live in damp earth, in water, or on plants. Tue pupa is quiescent, or active, and terrestrial, as the white ant, or aquatic, as the dragon and day fly. Dragon Flies have a large round head, large eyes, a slender body of varied colors, and can fly in all directions, forwards, backwards, and sideways. They have been seen 500 miles at sea. In two of the genera, the wings are always expanded. Ephemeral (Day or May-Flies) in the larvæ state exist two or three years burrowing in banks; but when perfect, live but a few hours. In the latter condition, they take no food, their object being to propagate the race, after which they die. They are seen in great numbers along the margin of streams in the fine days of summer and autumn, distinguished by their spotted wings, and three long tails. They have a strong inclination for luminous objects, evident from their gyrations round a lighted flambeau; and yet thy never see the sun, as they appear appear after his sitting and die before his rising. Myrmidion flourish between the tropics of great size and brilliancy. Their larvæ, called ant-lions, are about half an inch long, triangular in shape, have twelve eyes, a mouth with forceps, and can walk no other way than backwards. They feed chiefly on the formic acid of the ant, to catch which they excavate conical pitfalls in fine sand, two inches deep and three in width at the top, and hide themselves at the bottom. Termites or White Ants, mostly found within the tropics, are carnivorous, or omnivorous. They commit great ravages; and in marching hiss like serpents. Arriving at their perfect state, they fly off in the night, but lose their wings before morning. Their societies consist of larvæ who are the workers, most numerous, and one-quarter of an inch long—the pupæ or nymphs—neuters, who are the sentinels, of large size, and blind—males and females, of which there is one of each in every society. The latter (represented above) is queen; in oviposition, her abdomen becomes more than three inches long, equal to that of 25,000 workers, and by its peristaltic motion, extrudes 86,400 eggs a day. These the larvæ carry to the nurseries. The nests of these animals may be considered as a large city, numbering many houses, each having an infinity of cells. They are built of clay and completed in three or four years, and are larger than a wigwam, being twelve feet in height, covered by a vast dome, and adorned by pinnacles, and turrets, so that a cluster resembles an Indian village. The upper part is used as a castle; the lower comprises the royal chamber for the king and queen—an arched vault of semi-oval shape, surrounded by a labyrinth of arched rooms; nurseries for the young, made of wood, and half an inch wide; store-houses for food, as wood, gums, &c., and numerous galleries and empty rooms. We find also spiral thoroughfares, bridges of one elliptic arch, and Gothic arches receding as in perspective, not excavated but projected. Subterranean roads, wider than the bore of a large cannon branch out on every side of the metropolis, to the distance of several hundred feet. These edifices are 500 times the height of the workmen, while the pyramids are only 120 times. Were the terms of human dimensions, its buiding would rise half a mile high, and its tunnels expand to more than 300 feet in diameter.

VIII.—HETEROPTERA—(Unequal-winged.)



Pentatoma Rufipes.

Like the Homoptera, these insects are suctorial; but have anterior wings coriaceous at the base and membranous at the tip. The majority are tropical, of beautiful colors and markings. Most of the Geocorisa or Land-Bugs, when alarmed or touched, emit a powerful odor, in some species pleasing, in others disgusting. Some inject a poisonous fluid; in others the wings are undeveloped. The bed-bug was not known in England at the beginning of the 16th century. It was originally called chinche, punez, or wall-louse, and afterwards bug (Celtic for ghost or goblin) because they were "terrors by nighs," whence bug-bear. It is mentioned in Hamlet, Act V, scene 2, and Ps. XCI., 5. They sometimes attain the size of a cockchafer. Some of another family have the body shaped like a ferry-boat, and propel themselves over the surface of waters by the oar-like action of the two middle feet, using the hind legs, brought together as rudder. The Hydrocorisa or Water-Bugs are of an obscure black color. One tribe, called boat-flies, from swimming on their backs, have all their organs arranged for this position, and for rapid progression. The fore feet are claws for catching aquatic insects for food; the hind pairs are bristled for paddling. In warm weather they are found stationary on the surface of their element; but descend on the approach of danger, which they quickly learn by their all-seeing eyes. They carry down air for respiration beneath the wings. The nepidæ are very predacious; and breathe by two tubes at the end body.

Shellac Varnish for Furniture, &c.

This varnish has been employed by cabinet makers upon their ware, but not generally as a finishing varnish. It has generally been employed when much diluted for the purpose of filling the pores of the wood to form a good body, previous to the application of copal or finishing polish. Shellac is prepared from a gummy substance deposited upon trees by an insect. Seed-lac is more costly and better than shellac, being the select parts from the trees, free from many impurities, which exist in the latter, either kind forms a varnish when dissolved in alcohol, which alcohol should be a good article: say 0·80 to 0·85, spe. gr. This is the kind of varnish most frequently used by pattern makers, &c., but is hardly suitable for furniture or other similar articles, on account of its containing a yellowish coloring matter, which injures the appearances of the surface to which it is applied. Cabinet makers therefore employ a bleached solution of shellac particularly for white or light colored woods. The bleaching of shellac is generally effected on a large scale by chlorine or some of its compounds, or by sulphuric acid; the bleached article costs about 50 cents per lb., and the unbleached less than half this sum. The bleached shellac is frequently dissolved in spirits of wine for use as a varnish by cabinet makers. This varnish is quite apt to stain any inlaid metallic ornament upon the furniture, or any metal attached to it, in consequence of the varnish retaining a small portion of the bleaching compound in solution. Another process of bleaching may be adopted, which renders the varnish free from this objection, and very much reduces the cost of the bleached article of shellac or seed-lack. This process consists in the use of animal charcoal as a bleaching powder. It is prepared in the following manner. Any quantity of yellow shellac, previously broken in small pieces is conveyed into a flask, alcohol of 0·83 sp. gr. poured upon it and the whole heated on the hob, or, in the summer in the sum, until the shellac is dissolved; upon this, so much coarsely powered animal charcoal is added to the solution that the whole forms a thin paste, the flask is closed, not quite air-tight, and left so for sometime, exposed to the sun; and in eight to fourteen days a small sample is filtered sufficient to ascertain whether it has acquired a light yellowish brown color, and whether it yields a clear, pure polish on light-colored woods. If this be the case it is filtered through coarse blotting paper, for which purpose it is best to employ a tin-funnel, with double sides similar to those employed in filtering spirituous solutions of soaps in the preparation of transparent soaps opedeldoc, &c. The portion which first passes through the filter may be preserved separately, and be used as a ground or first polish. Then some more spirit is poured over the charcoal upon the filter, and the solution used as a last coating. The solution of shellac purified by animal charcoal has a brown yellow color, but it is perfectly clear and transparent, when diluted with alcohol, the color is so slight that it may be used in this state for polishing perfectly, white wood, such as maple, pine, &c., without the wood acquiring the least tint of yellow.

Shellac can be dissolved by an alkali, but it is rather a saponaceous compound, and it does not make a good varnish for resisting water. It is best to dissolve it in alcohol in order to get a good varnish, and one that will combine with coloring matters for various purposes. By adding some lampblack to alcholic lac varnish, a beautiful varnish for black leather is produced.

Destroying Effluvia.

The "North British Agriculturist" furnishes a statement of Lindsey Blyth, in relation to a very successful experiment for destroying a most offensive smell in a stable, arising from the decomposition of urine and dung. He tried the mixture of Epsom salts and plaster of Paris (gypsum)—"the most wonderful effects followed—the stable keeper was delighted." Previously, the stable was damp and unwholesome; and if closed for a few hours, the ammoniacal vapors were suffocating. After sprinkling the sulphates underneath the straw, and along the channel of the drain, the smell disappeared, and even the walls became drier. He recommends as an economical preparation for this purpose and for sewers, magnesia lime stone dissolved in sulphuric acid, (forming sulphate of magnesia or epsom salts,) with a portion of super phosphate of lime (made by dissolving bones in sulphuric acid)—these, at the same time that they retain the escaping ammonia, also add greatly by their own presence to the value of the manure.

Inventors wishing applications made for foreign patents are referred to a notice in our advertising columns.

LITERARY NOTICES.

THE WORKS OF SHAKSPEARE—Reprinted from the newly discovered copy of the folio of 1632, in possession of J Payne Collier, containing nearly twenty thousand manuscript corrections By J Payne Collier F S A. Under this announcement J. S. Redfield, of this city, has commenced to issue, in 16 parts, a very fine edition of Shakspear's writings. We have carefully examined several of Mr Collier's emendations, and we are free to acknowledge that they are entirely sensible, and are unquestionably genuine corrections. Two numbers have already been issued, and we understand have met with large sales. We rejoice at this, and urge our readers, who wish a perfect edition of Shakspeare, to procure this copy. The numbers are sold for 25 cents each.

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Manufacturers and Inventors.

A new Volume of the SCIENTIFIC AMERICAN commences about the middle of September in each year. It is a journal of Scientific, Mechanical, and other improvements; the advocate of industry in all its various branches. It is published weekly in a form suitable for binding, and constitutes, at the end of each year, a splendid volume of over 400 pages, with a copious index, and from five to six hundred original engravings, together with a great amount of practical information concerning the progress of invention and discovery throughout the world.

The Scientific American is the most widely circulated and popular journal of the kind now published. Its Editors, Contributors, and Correspondents are among the ablest practical scientific men in the world.

The Patent Claims are published weekly and are invaluable to Inventors and Patentees.

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